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Bradenton, FL 34205  
purchasing@mymanatee.org

## Solicitation Addendum

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**Addendum No.:** 1  
**Solicitation No.:** 18-R069001JP  
**Project No.:** 526007511  
**Solicitation Title:** Mullholland Road Water Main  
**Addendum Date:** September 5, 2018.  
**Procurement Contact:** Joe Pretorius

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**IFBC 18-R069001JP IS AMENDED AS SET FORTH HEREIN. THIS ADDENDUM IS HEREBY INCORPORATED IN AND MADE A PART OF IFBC 18-R069001JP**

**Add to:**  
**SECTION D, BID ATTACHMENTS**

Attachment 7, G.T Bray Football and Soccer Lighting Project Plan Sheets

**Change to:**

### **A.50 Solicitation Schedule**

Scheduled Item	Scheduled Date
Question and Clarification Deadline	<del>August 24</del> <u>September 7</u> , 2018
Final Addendum Posted	<del>August 30</del> <u>September 11</u> , 2018
Bid Response and Due Date and Time	<del>September 6</del> <u>September 14</u> , 2018, 3:00 P.M., ET

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NOTE: Items that are ~~struck through~~ are deleted. Items that are underlined have been added. All other terms and conditions remain as stated in the IFBC.

**End of Addendum**

**INSTRUCTIONS:**

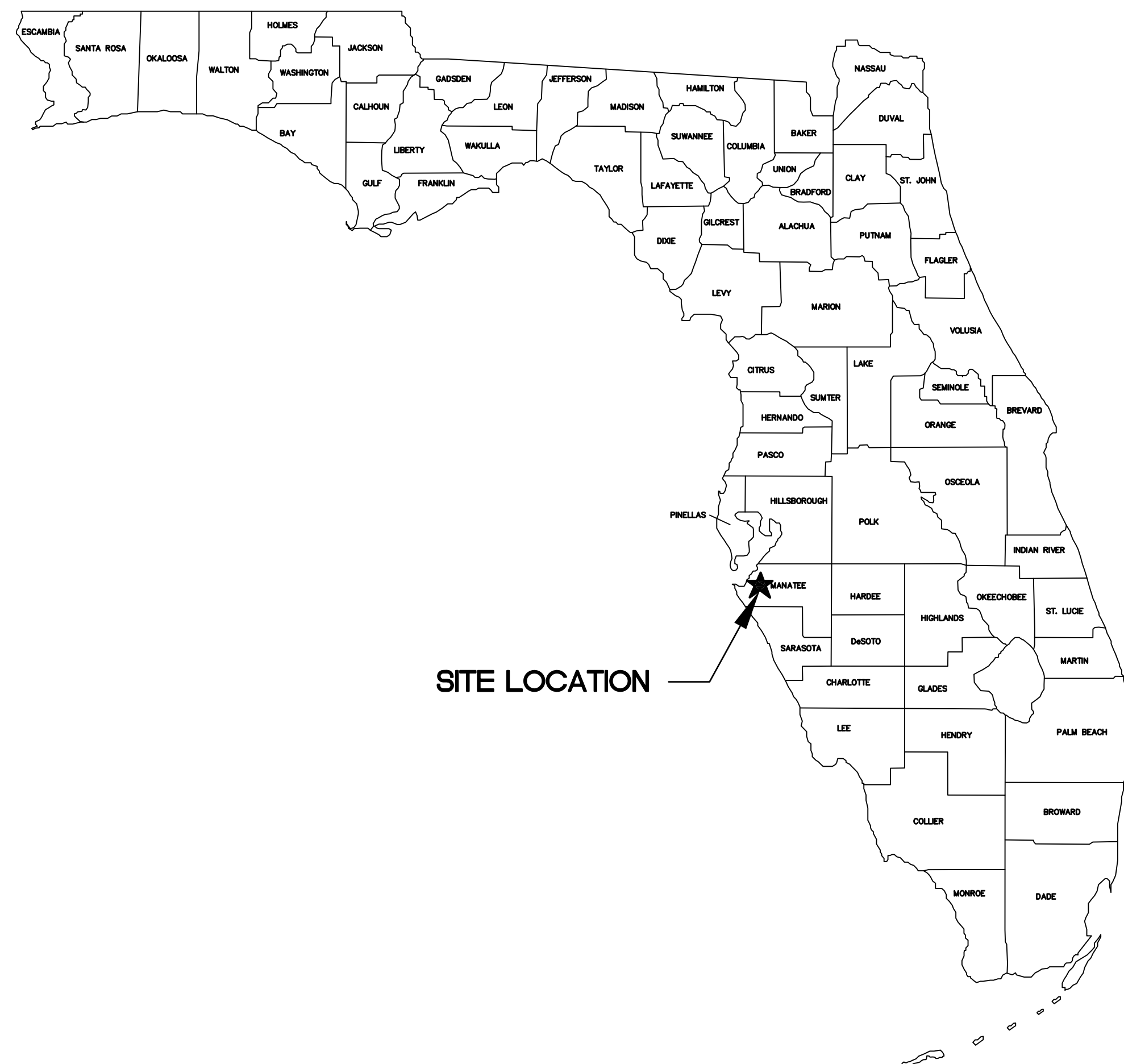
Receipt of this addendum must be acknowledged as instructed in the solicitation document. Failure to acknowledge receipt of this Addendum may result in the response being deemed non-responsive.

AUTHORIZED FOR RELEASE: \_\_\_\_\_ 

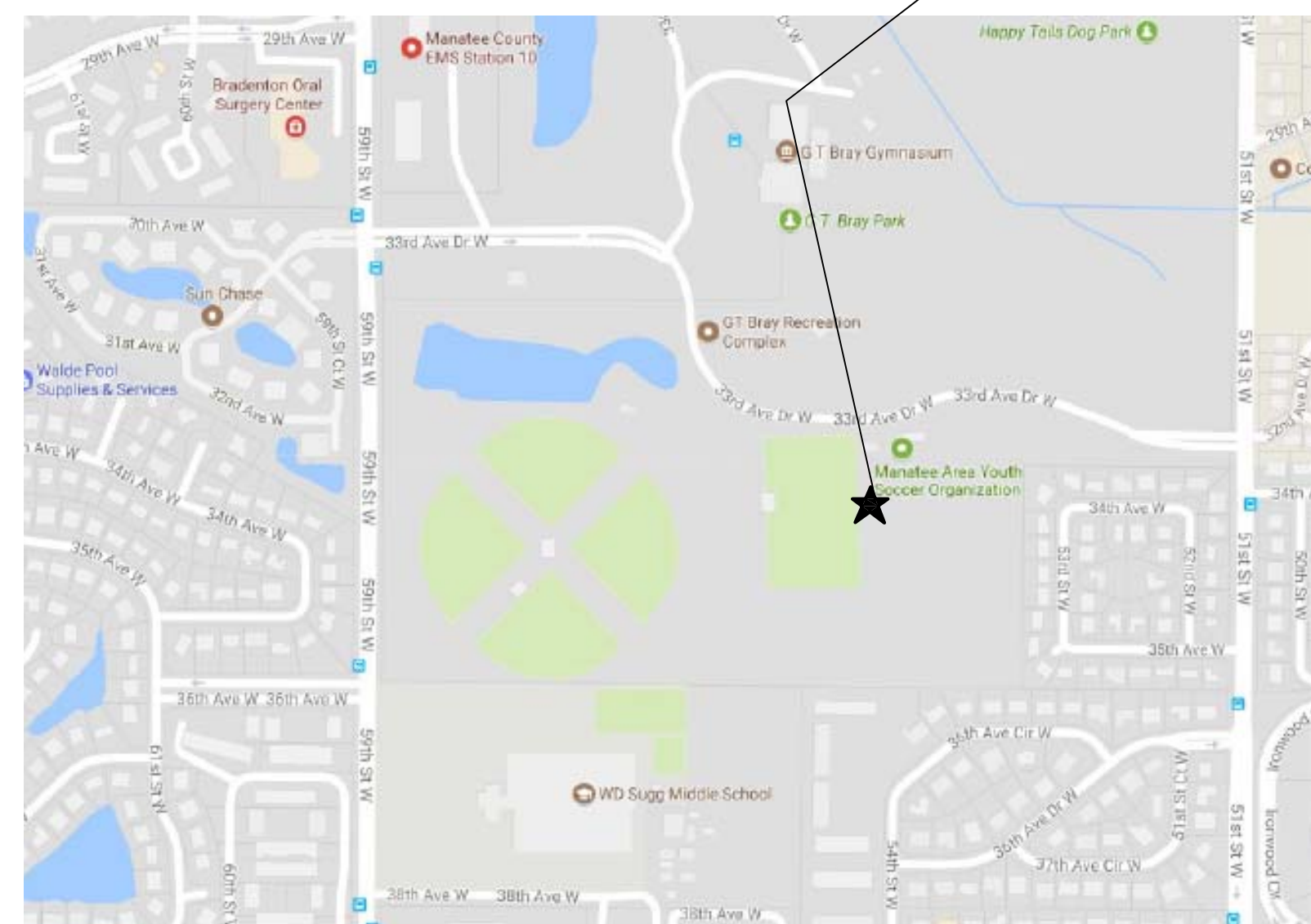
# G.T. BRAY FOOTBALL AND SOCCER LIGHTING PROJECT

## 5502 33RD AVE. DR. W. BRADENTON, FL 34209

### WA# 3



**LOCATION MAP**  
FLORIDA



**SITE LOCATION**

**SITE MAP**

PROVIDE PRICING FOR A COMPLETE AND WORKING ELECTRICAL AND LIGHTING SYSTEM AT THE FACILITY.  
BASE BID: 1:LED LIGHTING FOR FOOTBALL AND NEW SOCCER FIELD

### SHEET SCHEDULE

SHEET	DESCRIPTION
COVER	PROJECT NAME, LOCATION and SITE MAPS, SHEET SCHEDULE
E1.0	SYMBOLS, LEGENDS AND GENERAL NOTES
E2.0	DEMOLITION SITE PLAN
E2.2	NEW ELECTRICAL SITE PLAN FOOTBALL
E2.3	NEW ELECTRICAL SITE PLAN SOCCER
E2.4	PHOTOMETRIC SITE PLAN FOOTBALL
E2.5	PHOTOMETRIC SITE PLAN SOCCER
E2.6	SPILL LIGHTING PHOTOMETRICS
E4.0	DETAILS, GENERAL NOTES, ELECTRICAL ENCLOSURE
E5.0	ONE-LINE RISER DIAGRAM AND SCHEDULES
E6.0	SPECIFICATIONS
E6.1	SPECIFICATIONS

To the best of the engineer's knowledge, said plans and specifications comply with the applicable building codes and the applicable minimum fire safety standards as determined in accordance with Chapters 553 and 633, Florida Statutes.

**ATP ENGINEERING SOUTH, PL**  
**BRADENTON, FLORIDA**  
**ENGR. BUSINESS #8908**  
**941-751-6485**

SEAL

MATTHEW J. CAMDEN, P.E.  
FL#79284

# ELECTRICAL SYMBOLS AND ABBREVIATIONS

**NOTE:**  
THESE ARE STANDARD SYMBOLS AND MAY NOT ALL APPEAR ON THE PROJECT DRAWINGS; HOWEVER WHEREVER THE SYMBOL APPEARS ON THE PROJECT DRAWINGS, THE ITEM SHALL BE PROVIDED AND INSTALLED.

SYMBOL	DESCRIPTION
X-2-C	X = FIXTURE TYPE, 2 = CIRCUIT NUMBER, C = SWITCH LEG F - FLUORESCENT K - INCANDESCENT H - H.I.D.
	FLUORESCENT STRIP TYPE FIXTURE
	FLUORESCENT TYPE FIXTURE
	FLUORESCENT TYPE FIXTURE WITH EMERGENCY BATTERY BALLAST
	CEILING MOUNT LIGHT FIXTURE
	CEILING MOUNT RECESSED LIGHT FIXTURE (ROUND OR SQUARE, SEE SCHEDULE)
	INTERIOR WALL MOUNT FIXTURE
	EXTERIOR WALL MOUNT FIXTURE
	LIGHT POLE WITH ONE FIXTURE (FIXTURE LOCATION AND SPACING AS SHOWN)
	2 HEAD POLE LIGHT. LOCATION AND SPACING AS SHOWN.
	3 HEAD POLE LIGHT. LOCATION AND SPACING AS SHOWN.
	EXIT LIGHT - CEILING MOUNTED ARROWS DENOTE EGRESS PATH
	EXIT LIGHT - WALL MOUNTED ARROWS DENOTE EGRESS PATH
	EMERGENCY WALL MOUNT W/ BATTERY UNIT
	EXIT / EMERGENCY WALL MOUNT W/ BATTERY UNIT ARROWS DENOTE EGRESS PATH
	EMERGENCY WALL MOUNT REMOTE HEAD

SYMBOL	DESCRIPTION
	CONCEALED CONDUIT
	4" CONDUIT SLEEVE WITH BUSHINGS THRU WALL ABOVE CEILING
	LETTER DESIGNATION REFERS TO SYSTEM (SEE ABBREVIATIONS)
	QUANTITY OF CONDUCTORS OR CABLES IN CONDUIT "F50" DENOTES THE FEEDER SIZE "A-XX" DENOTES PANEL AND CIRCUIT #
	CONDUIT TURNED UP
	CONDUIT TURNED DOWN
	JUNCTION OR PULL BOX
	CABLE TRAY
	U/G CONDUIT TURNED UP
	U/G CONDUIT TURNED DOWN

SYMBOL	DESCRIPTION
	DUPLEX RECEPTACLE - NORMAL CIRCUIT "X" INDICATES AS FOLLOWS: NONE = 20 AMP, 125VAC GFI = 20 AMP, 125VAC, GROUND FAULT INTERRUPTER TYPE HM = 20 AMP, 125VAC, HORIZONTAL MOUNT TYPE IG = 20 AMP, 125VAC, ISOLATED GROUND TYPE S = 20 AMP, 125VAC, TVSS PROTECTION TYPE WP = 20 AMP, 125VAC, WEATHERPROOF TYPE
	DOUBLE DUPLEX RECEPTACLE
	TOGGLE SWITCH - SINGLE POLE
	TOGGLE SWITCH - DOUBLE POLE
	TOGGLE SWITCH - 3-WAY
	TOGGLE SWITCH - 4-WAY
	TOGGLE SWITCH - a- INDICATES TYPE T: TIMER, K: KEY OPERATED
	SWITCH - DIMMER
	SWITCH - FAN SPEED CONTROL
	WALL MOUNTED OCCUPANCY SENSOR
	CEILING MOUNTED OCCUPANCY SENSOR x = TYPE, SEE PLANS

SYMBOL	DESCRIPTION
	DISTRIBUTION PANELBOARD AND CABINET - RECESSED MOUNT
	DISTRIBUTION PANELBOARD AND CABINET - SURFACE MOUNT
	BRANCH PANELBOARD AND CABINET - RECESSED MOUNT
	BRANCH PANELBOARD AND CABINET - SURFACE MOUNT
	LOAD CENTER - SURFACE MOUNT
	LOAD CENTER - RECESSED MOUNT
	DENOTES PANEL/PANELBOARD DESIGNATION
	DISCONNECT SWITCH - FUSED "X" = RATING, "Y" = FUSE SIZE
	DISCONNECT SWITCH - NON-FUSED
	DISCONNECT SWITCH - CIRCUIT BREAKER
	DRY TYPE TRANSFORMER - "XX" INDICATES KVA
	METER SOCKET
	CURRENT TRANSFORMER METER SOCKET
	SURGE PROTECTION DEVICE
	WIREWAY
	GROUND CONNECTION

DRAWING SYMBOLS	
	DETAIL NUMBER
	DRAWING NUMBER WHERE DRAWN
	SECTION LETTER
	DRAWING NUMBER WHERE DRAWN
	REFER TO LIKE NUMBER NOTES.
	REFER TO LIKE NUMBER NOTES.

ABBREVIATIONS	
A	AMPERE
AC	AIR CONDITIONING OR ALTERNATING CURRENT
ACC	ACCESS
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLER UNIT
AM	AMMETER
ARCH	ARCHITECT
AT	AMPERE TRIP
ATC	AUTOMATIC TEMPERATURE CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
CAT	CATEGORY
CB	CIRCUIT BREAKER
CH	CHILLER
CKT	CIRCUIT
CL	CENTER LINE
CLF	CURRENT-LIMITING FUSE
CM	CEILING MOUNTED
CNTL	CONTROL
CU	COPPER
DWG(S)	DRAWING(S)
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EM	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
EMT	ELECTRICAL METALLIC TUBING
EPO	EMERGENCY POWER OFF
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EX	EXISTING TO REMAIN
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FACC	FIRE ALARM COMMAND CENTER
FATC	FIRE ALARM TERMINAL CABINET
FLR	FLOOR
FMC	FURNISHED BY MECHANICAL CONTRACTOR
FO	FIBER OPTIC
FOTC	FIBER OPTIC TERMINAL CABINET
FSS	FIRE SUPPRESSION SYSTEM
FWE	FURNISHED WITH EQUIPMENT
GFI	GROUND FAULT INTERRUPTER
GND,G	GROUND
GRS	GALVANIZED RIGID STEEL CONDUIT
HOA	HAND-OFF-AUTO
HACR	HEATING/AIR CONDITIONING-RATED
HID	HIGH INTENSITY DISCHARGE
HPF	HIGH POWER FACTOR
HPS	HIGH PRESSURE SODIUM
HZ	HERTZ
HP	HORSEPOWER
IG	ISOLATED GROUND
IMC	INTERMEDIATE METALLIC CONDUIT
JB	JUNCTION BOX
KAIC	KILO AMPERE INTERRUPTING CAPACITY
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT AMPERE
KW	KILOWATT
LC	LIGHTING CONTACTOR
MC	MECHANICAL CONTRACTOR
MCC	MOTOR CONTROL CENTER
M-G	MOTOR GENERATOR
MDP	MAIN DISTRIBUTION PANEL
MH	METAL HALIDE
MOD	MOTOR OPERATED DAMPER OR DOOR
MTD	MOUNTED
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NF	NON-FUSED
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OCPD	OVER CURRENT PROTECTIVE DEVICE
PNL	PANEL
Ø	PHASE
PB	PUSHBUTTON
PE	PHOTOELECTRIC CONTROLLER
PC	PLUMBING CONTRACTOR
PVC	POLYVINYL CHLORIDE CONDUIT
RTU	ROOF TOP UNIT
SCH	SCHEDULE
SEC	SECURITY
SPD	SURGE PROTECTION DEVICE
SW	SWITCH
SWGR	SWITCHGEAR
TEL T	TELEPHONE
TBB	TELEPHONE BACKBOARD
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TC	TIME CLOCK
XFMR	TRANSFORMER
XFR	TRANSFER
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UL,U.L.	UNDERWRITERS LABORATORIES
UPS	UNINTERRUPTIBLE POWER SUPPLY
U.O.N.	UNLESS OTHERWISE NOTED
VT	VAPORTIGHT
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
VSD	VARIABLE SPEED DRIVE
V	VOLT
W	WATT
WP	WEATHER PROOF

## BIDDING NOTES:

THE STRUCTURAL DESIGN AND WIND LOADING DETAILS FOR THE POLES SHALL BE PROVIDED BY THE CONTRACTOR AS WELL AS THE GENERAL CONSTRUCTION MATERIALS.

GEOTECHNICAL AND SOILS ANALYSIS SHALL BE DONE PRIOR TO START OF CONSTRUCTION AND PROVIDED TO THE LIGHTING AND POLE COMPANY TO VERIFY THE SOIL CONDITIONS. PRICING SHALL BE INCLUDED IN THE BIDS FOR SOILS ANALYSIS.

ADDITIONAL BIDDING INFORMATION IS PROVIDED ON THE COVER SHEET.

PROVIDE A DIMMING CAPABILITY WITH THE LED OPTION. PROVIDE A LOW, MEDIUM, AND HIGH LEVEL. SECURITY LIGHTING IS INCLUDED IN THE BID - SECURITY LIGHTS ARE LED.

AVIAN PLATFORMS SHOULD BE INCLUDED IN THE BID. ONE PLATFORM IS INCLUDED PER FIELD. COORDINATION WITH THE OWNER'S REPRESENTATIVE FOR THE PLACEMENT OF THE AVIAN PLATFORMS SHALL BE DONE DURING THE INITIAL KICKOFF MEETING.

ALL EXTERIOR EQUIPMENT SHALL BE RATED NEMA 3R OR BETTER FOR EXTERIOR CONDITIONS.

## GENERAL NOTES (APPLY TO ALL DRAWINGS):

- THE WORK INDICATED ON THESE DRAWINGS IS DIAGRAMMATIC AND IS INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL ARRANGEMENT OF EQUIPMENT AND DEVICES FOR A COMPLETE SYSTEM IN EVERY RESPECT AND DETAIL, TESTED AND LEFT READY IN PERFECT OPERATING CONDITION FOR THE OWNER'S USE. MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDERWRITERS' LABORATORIES AND SHALL BE INSTALLED IN ACCORDANCE WITH SUCH LISTINGS. INSTALLATIONS SHALL BE MADE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. WORK SHALL MEET THE REQUIREMENTS OF THE SPECIFICATIONS AND CONFORM TO THE NEC (NFPA 70 & 72) AND ALL APPLICABLE CODES, AND BE COMPLETED BY A QUALIFIED, EXPERIENCED, LICENSED ELECTRICAL CONTRACTOR.
- THE ENGINEER HAS MADE AN EFFORT TO COORDINATE WORK WITH OTHER TRADES AND IDENTIFY ANY AND ALL CONFLICTS. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE FIELD WORK BETWEEN TRADES AND TO IDENTIFY FIELD CONDITIONS PRIOR TO INSTALLATION AND REPORT ANY CONFLICTS TO THE ENGINEER.
- FOR BIDDING PURPOSES, WHEN A CONFLICT OCCURS BETWEEN THE SPECIFICATIONS AND DRAWINGS, THE ITEMS OF GREATER QUANTITY AND/OR COST SHALL BE PROVIDED. ANY SUCH CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION.
- CONTRACTOR SHALL VERIFY THE LOCATION AND ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT FURNISHED BY OTHER TRADES PRIOR TO INSTALLATION. COORDINATE ROUGH-IN INSTALLATION WITH EQUIPMENT DETAILS.
- ALL OPENINGS IN FIRE AND SMOKE PARTITIONS SHALL BE SEALED AS REQUIRED BY THE NEC/ FLORIDA BUILDING CODE. PROVIDE UL LISTED COMPOUND TO MATCH PARTITION RATING.
- DO NOT SCALE DRAWINGS. VERIFY FIELD CONDITIONS PRIOR TO AND DURING CONSTRUCTION FOR EXACT DEVICE / EQUIPMENT LOCATION.
- DEMOLITION WORK: PROVIDE DEMOLITION AND REMOVAL WORK AS INDICATED OR NEEDED. EQUIPMENT THAT IS TO BE REMOVED INCLUDES ALL ASSOCIATED WIRING, BOXES AND CONDUIT BACK TO SOURCE. CLOSE ALL UNUSED OPENINGS IN JUNCTION BOXES THAT REMAIN WITH SUITABLE PLUG OR COVER. WHEN REMOVING OR RELOCATING LIGHT FIXTURES OR OTHER DEVICES, FIELD VERIFY REMAINING DEVICES IN THE SAME CIRCUIT AND RECONNECT FOR CONTINUED SERVICE. EXISTING ELECTRICAL WORK INTERFERING WITH NEW CONSTRUCTION SHALL BE RELOCATED OR REROUTED TO SUIT FINAL INSTALLATION. CUTTING AND PATCHING REQUIRED SHALL BE DONE TO RESTORE AREAS TO ORIGINAL CONDITION.
- CONTRACTOR SHALL PROVIDE TO LOCAL AHJ OR PERMITTING AGENCY A COPY OF ALL MAJOR EQUIPMENT CUT SHEETS AT TIME OF APPLICATION IF REQUESTED. CONTRACTOR SHALL PROVIDE ALL PERMITTING APPLICATIONS AND RELATED FEES FOR THE PROJECT.
- LIGHT POLES, AND BASE DESIGNS ARE TO BE COMPLETED BY THE LIGHTING MANUFACTURER AND ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL PROVIDE SIGNED AND SEALED LIGHT POLE AND BASE DRAWINGS MEETING THE FBC WIND LOAD CRITERIA CH 16.



### CALL BEFORE YOU DIG

EXISTING UTILITIES AND FACILITIES ARE IN PLACE. CALL BEFORE YOU DIG! CALL SUNSHINE STATE ONE-CALL OF FLORIDA AT "811" TWO FULL BUSINESS DAYS BEFORE ANY EXCAVATION TO LOCATE ALL UNDERGROUND UTILITIES. (IN FLORIDA, THE LAW REQUIRING EXCAVATORS TO CALL 811 BEFORE DIGGING IS THE UNDERGROUND FACILITY DAMAGE PREVENTION AND SAFETY ACT, CHAPTER 558, FLORIDA STATUTES.) CONTRACTOR SHALL BE RESPONSIBLE TO HAVE ALL EXISTING UTILITIES LOCATED PRIOR TO THE START OF ANY WORK, AND SHALL REPAIR/ REPLACE ANY SYSTEMS HE/SHE DAMAGES DURING CONSTRUCTION AT HIS/HER OWN EXPENSE.

THESE DOCUMENTS HAVE BEEN PREPARED BASED ON INFORMATION PROVIDED BY OTHERS. THE CONSULTANT HAS NOT VERIFIED THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS THAT MAY BE INCORPORATED AS A RESULT OF ERRONEOUS INFORMATION PROVIDED BY OTHERS. NOTIFY THIS ENGINEER IMMEDIATELY OF ANY DISCREPANCIES FOUND.

SEAL  
**ATP ENGINEERING SOUTH, FL**  
 BRADENTON, FLORIDA  
 ENGR. BUSINESS #6908  
 941-751-6485  
 DATE: \_\_\_\_\_  
 REV # | DESCRIPTION

**GT BRAY FOOTBALL AND SOCCER FIELDS**  
**LIGHTING PROJECT**  
 5502 33RD AVE. DR. W.  
 BRADENTON, FL 34209  
 WA# 3

DRAWING TITLE:  
**ELECTRICAL SYMBOLS AND LEGEND SHEET**  
 FILE: GTBRAYFootballandSo  
 JOB NO.: 2017.70  
 DATE: 11/14/2017  
 PLOT SIZE: 1:1  
 DRAWN BY: MJC  
 CHECKED BY: JDC  
 SHEET No.:  
**E1.0**

MATTHEW J. CAMDEN  
 FL #19284

33RD AVE  
ST. W.

EXISTING FP&L TRANSFORMER WITH SITE SWITCHGEAR  
EXISTING MUSCO CONTROLS AND SWITCHGEAR (SOCCER)  
EXISTING GE CONTROLS AND SWITCHGEAR(FOOTBALL)

EXISTING FOOTBALL FIELD LIGHTING TO BE DEMOLISHED  
EXISTING FOOTBALL FIELD LIGHTING TO BE DEMOLISHED

ALL EXISTING POLES ARE TO REMAIN AND TO BE VERIFIED BY THE STRUCTURAL ENGINEER FROM THE LIGHTING MANUFACTURER. SEVERAL NEW POLES ARE TO BE PLACED AND THE NEW WIND LOADS FOR ALL POLES SHALL BE CALCULATED BY THE LIGHTING MANUFACTURER'S ENGINEER.

EXISTING FOOTBALL FIELD LIGHTING TO BE DEMOLISHED

EXISTING SOCCER FIELD LIGHTING TO REMAIN

EXISTING SOCCER FIELD LIGHTING TO REMAIN

**DEMOLITION NOTES:**

COORDINATE DEMOLITION WITH ACTUAL SITE CONDITIONS. REMOVE ALL EXISTING WIRE AND CONDUITS THAT GO TO THE EXISTING LIGHTING.

RESTORE THE SITE TO ORIGINAL OR BETTER CONDITION WHEN THE JOB IS COMPLETED. PROVIDE AND INSTALL SHELL AND ALL SODDING PER THE COUNTY'S REQUIREMENTS - SODDING OR SEEDING WILL DEPEND UPON THE SEASON, CONSULT WITH THE PROJECT MANAGER.

CONDUIT LOCATIONS SHOULD BE SITE VERIFIED. LEAVE ALL CONDUITS AND EQUIPMENT THAT PERTAINS TO THE EXISTING SCORE BOARDS AND 2 STORY STRUCTURE. NEW (2)- 1-1/4" CONDUITS WITH PULL STRINGS ARE REQUESTED FOR FUTURE REPLACEMENT OF THE SCORE BOARDS. LOCATE EXISTING CONDUITS AND BRING BACK TO THE ORIGINAL SCORE BOARD LOCATIONS.

REPAIRS TO THE IRRIGATION SYSTEM, RELATED TO THE CONSTRUCTION PROCESS, SHALL BE CONSULTED WITH THE OWNER'S REPRESENTATIVE AND THE PARKS GROUP. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES THAT THEY INCUR DURING THE CONSTRUCTION PROCESS.

REFER TO THE ONE-LINE RISER DIAGRAM FOR THE DEMOLITION AND RESTORATION OF POWER TO DIFFERENT LOCATIONS- NEW MAINS, POWER TO LOCATIONS, LIGHTING CONTROLS, AND SITE POWER.

IF THERE ARE ANY QUESTIONS ON THE DEMOLITION, PLEASE CONTACT THE ENGINEER IMMEDIATELY. DO NOT DIG OR START DEMOLITION WITHOUT GOING THROUGH THE KICKOFF MEETING.

THE SITE SHALL BE RESTORED TO THE ORIGINAL SITE OR BETTER CONDITIONS AFTER THE CONSTRUCTION HAS BEEN COMPLETED.

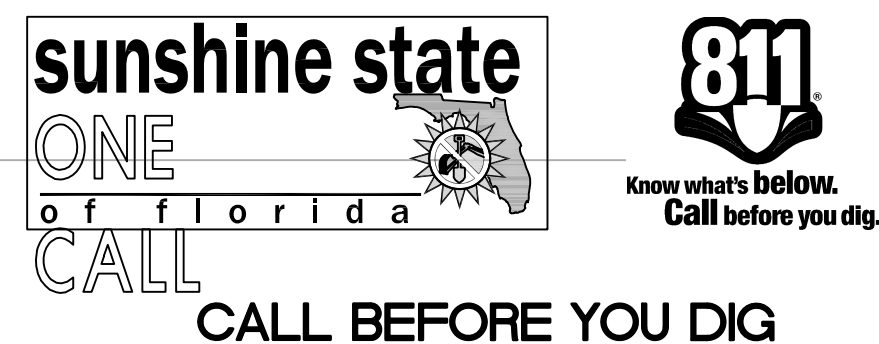
EXISTING  
SOCCER  
FIELD PH2



**DEMOLITION SITE PLAN**  
1  
E2.0  
1/32" = 1'-0"

FOOTBALL

HOUSING



EXISTING UTILITIES AND FACILITIES ARE IN PLACE. CALL BEFORE YOU DIG. CALL SUNSHINE STATE ONE-CALL OF FLORIDA AT "811" TWO FULL BUSINESS DAYS BEFORE ANY EXCAVATION TO LOCATE ALL UNDERGROUND UTILITIES. (IN FLORIDA, THE LAW REQUIRING EXCAVATORS TO CALL 811 BEFORE DIGGING IS THE UNDERGROUND FACILITY DAMAGE PREVENTION AND SAFETY ACT, CHAPTER 556, FLORIDA STATUTES.) CONTRACTOR SHALL BE RESPONSIBLE TO HAVE ALL EXISTING UTILITIES LOCATED PRIOR TO THE START OF ANY WORK, AND SHALL REPAIR/ REPLACE ANY SYSTEMS HE/SHE DAMAGES DURING CONSTRUCTION AT HIS/HER OWN EXPENSE.

SOCCER  
FIELD  
FUTURE

SCALE  
DATE  
REV # DESCRIPTION

**ATP ENGINEERING SOUTH, FL**  
BRADENTON, FLORIDA  
ENGR. BUSINESS #8908  
941-751-6485

MATTHEW J. CAMDEN  
FL#19284

**GT BRAY FOOTBALL AND SOCCER FIELDS LIGHTING PROJECT**  
5502 33RD AVE. DR. W.  
BRADENTON, FL 34209  
WA# 3

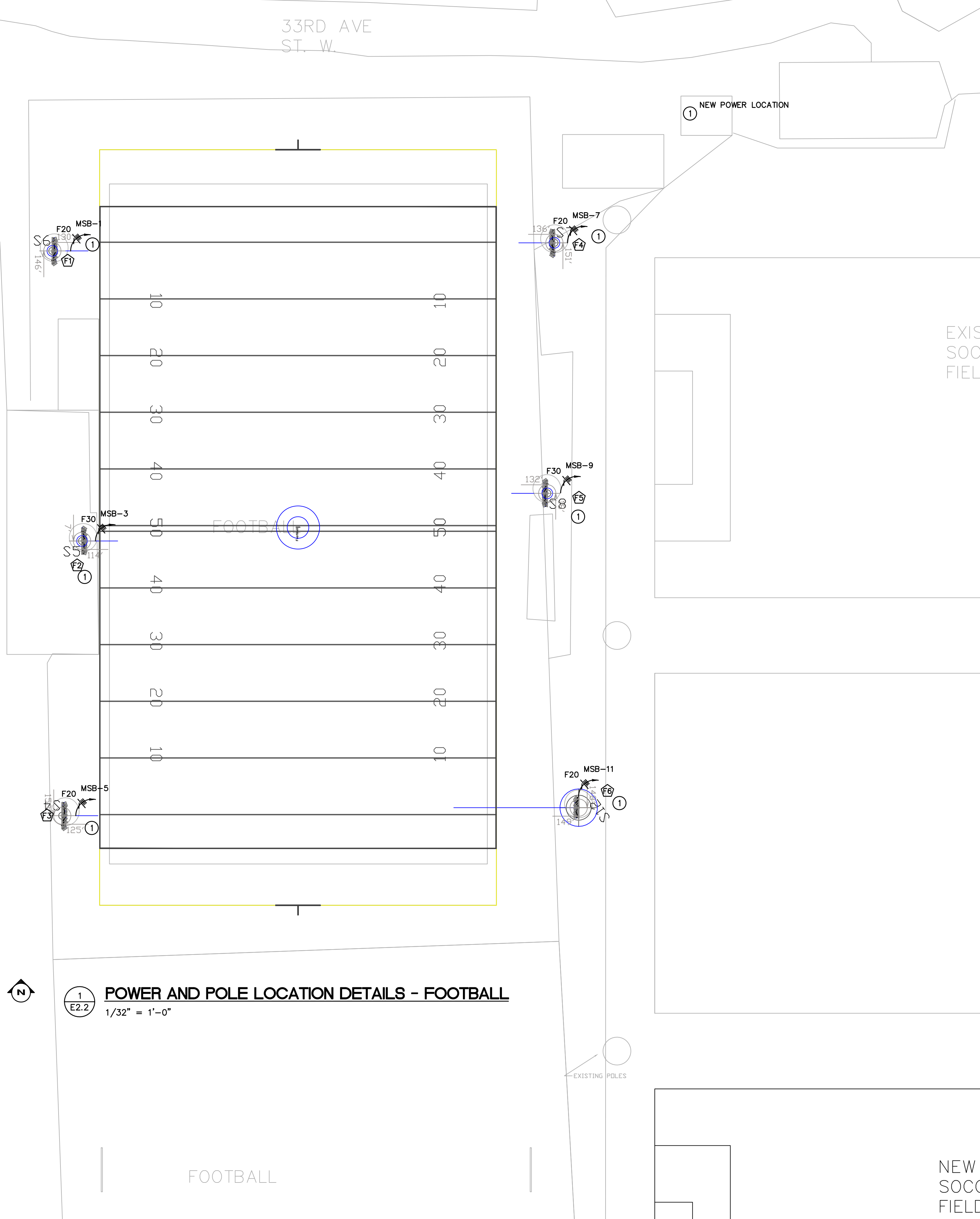
**GT BRAY EXISTING FIELD SITE PLAN**

FILE: GTBRAYFootballandSo  
JOB NO.: 2017.70  
DATE: 11/14/2017  
PLOT SIZE: 1:1  
DRAWN BY: CMD/MC  
CHECKED BY: MC  
SHEET No.:  
**E2.0**

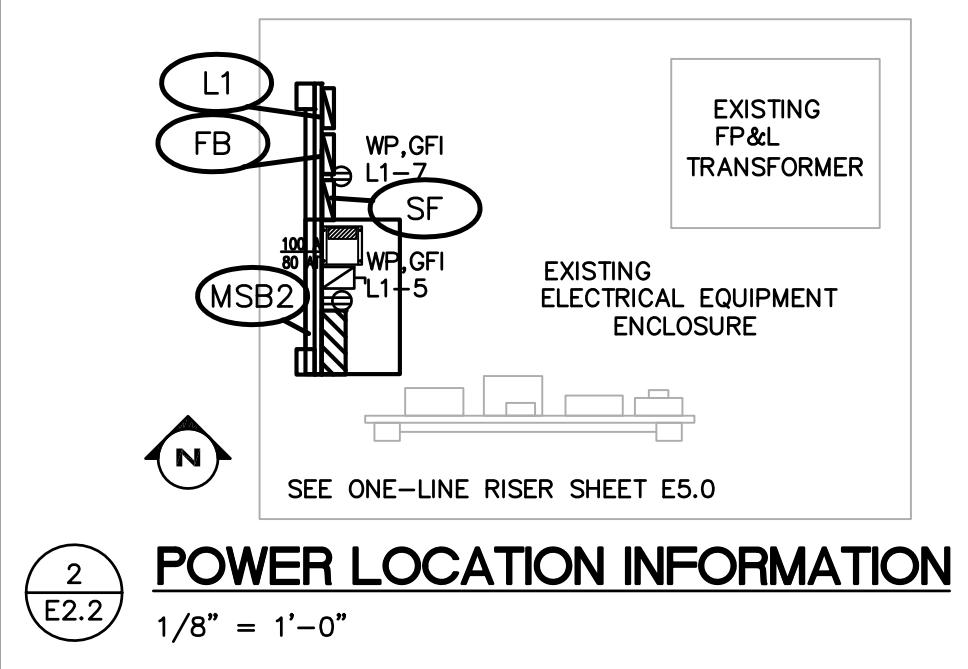
**PLAN NOTES:**

- ① PRIOR TO ANY DIGGING, FIELD LOCATE ELECTRICAL RUNS AND PULL BOXES WITH OWNER'S REPRESENTATIVE.
- Ⓐ POLE LOCATION IDENTIFIER- EX: POLE A1

EQUIPMENT LIST FOR AREAS SHOWN					
QTY #	LOCATION	POLE SIZE	LUMINAIRE TYPE	MOUNTING HEIGHT	QUANTITY/POLE
4	F1, F3-F4 AND F6	EXISTING	TLC-BT-575 TLC-LED-1150	15' 60'	2 4
2	F2 AND F5	EXISTING	TLC-BT-575 TLC-LED-1150	15' 60'	2 5



①  
E2.2 POWER AND POLE LOCATION DETAILS - FOOTBALL  
1/32" = 1'-0"



②  
E2.2 POWER LOCATION INFORMATION  
1/8" = 1'-0"

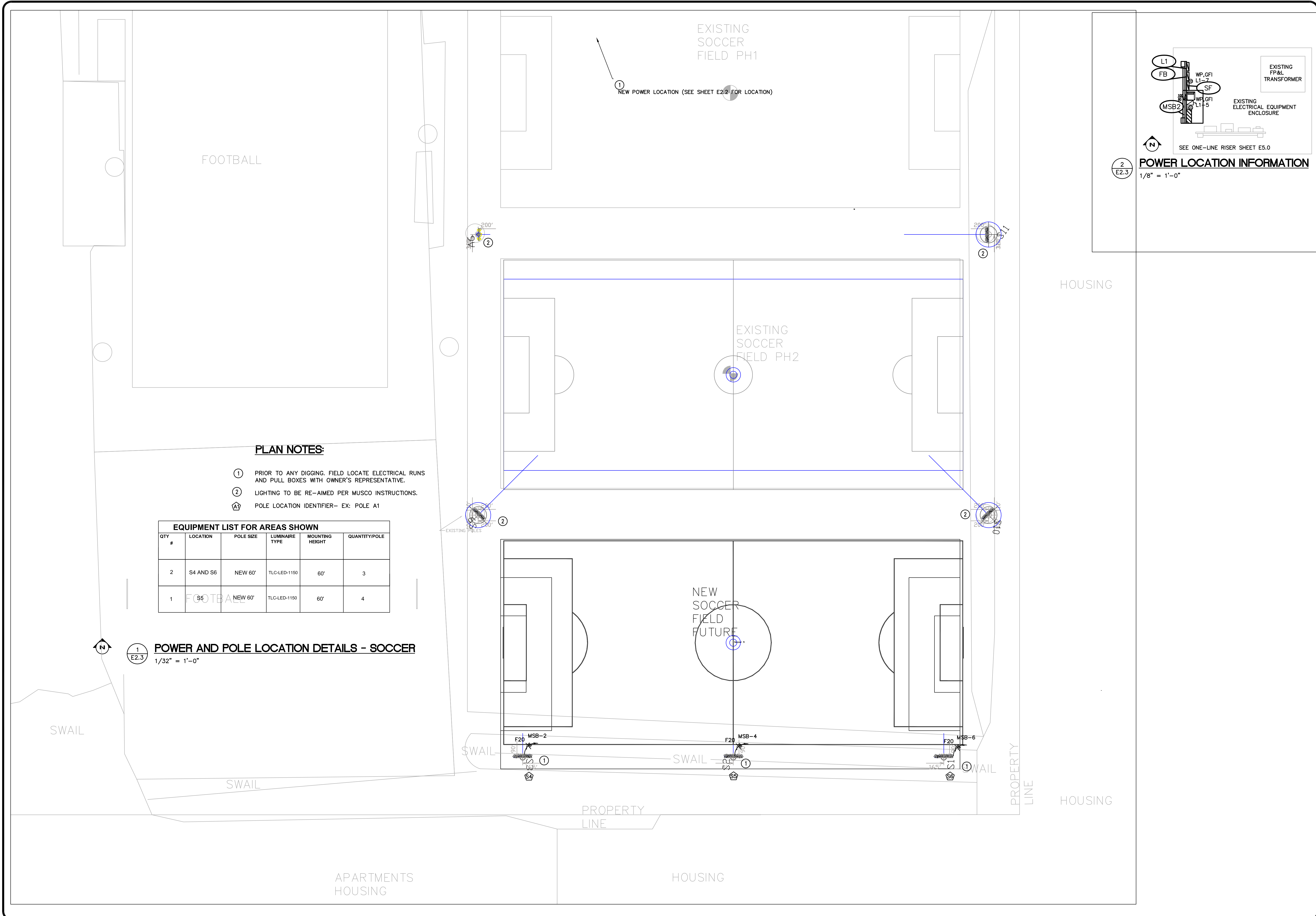
SEAL  
MATTHEW J. CAMDEN  
FL #19264

**GT BRAY FOOTBALL AND SOCCER FIELDS LIGHTING PROJECT**  
5502 33RD AVE. DR. W.  
BRADENTON, FL 34209  
WA# 3

**GT BRAY POWER AND SYSTEMS FOOTBALL SITE PLAN**

REV #	DESCRIPTION	DATE

FILE: GTBRAYFootballandSo  
JOB NO.: 2017.70  
DATE: 11/14/2017  
PLOT SIZE: 1:1  
DRAWN BY: CMD/MC  
CHECKED BY: MC  
SHEET No.: **E2.2**



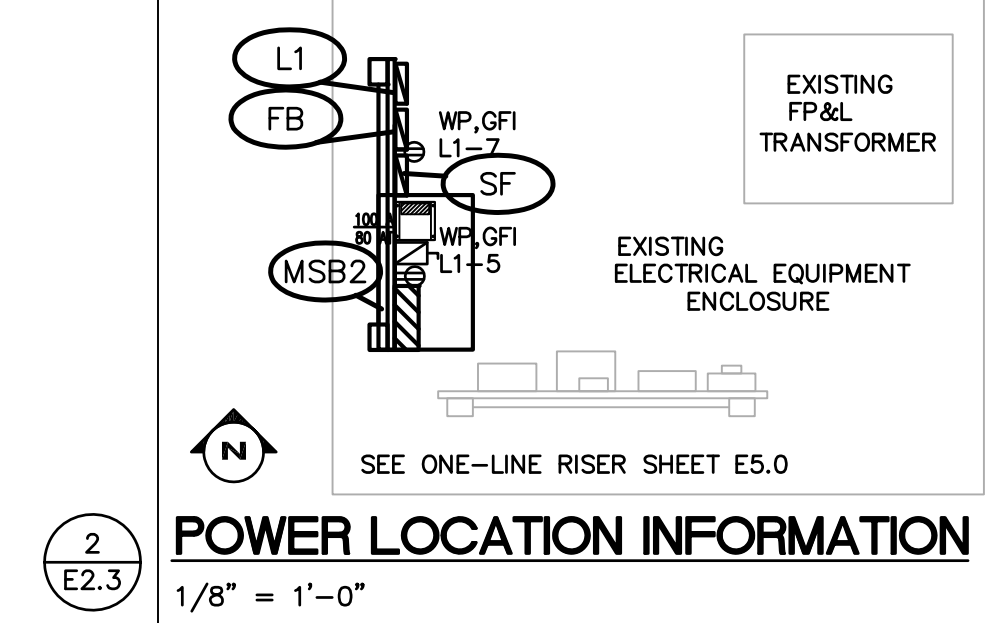
**PLAN NOTES:**

- ① PRIOR TO ANY DIGGING, FIELD LOCATE ELECTRICAL RUNS AND PULL BOXES WITH OWNER'S REPRESENTATIVE.
- ② LIGHTING TO BE RE-AIMED PER MUSCO INSTRUCTIONS.
- Ⓐ POLE LOCATION IDENTIFIER-- EX: POLE A1

**EQUIPMENT LIST FOR AREAS SHOWN**

QTY #	LOCATION	POLE SIZE	LUMINAIRE TYPE	MOUNTING HEIGHT	QUANTITY/POLE
2	S4 AND S6	NEW 60'	TLC-LED-1150	60'	3
1	FOOTBALL	NEW 60'	TLC-LED-1150	60'	4

① E2.3 **POWER AND POLE LOCATION DETAILS - SOCCER**  
1/32" = 1'-0"



SEAL  
MATTHEW J. CAMDEN  
FL #29284

**ATP ENGINEERING SOUTH, FL**  
BRADENTON, FLORIDA  
ENGR. BUSINESS #8908  
941-751-6485

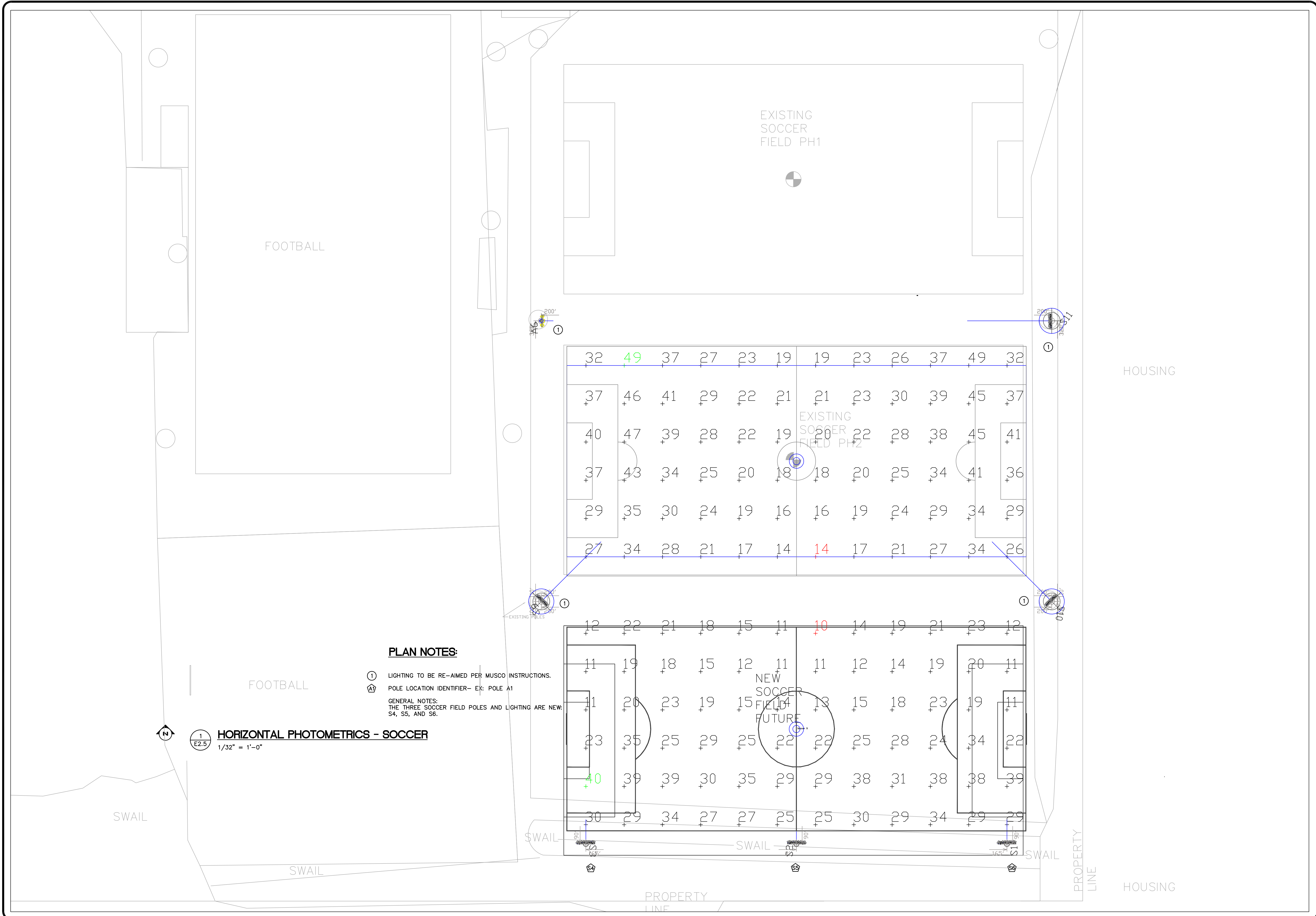
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5502 33RD AVE. DR. W.  
BRADENTON, FL 34209  
WA# 3

**GT BRAY POWER AND SYSTEMS SOCCER SITE PLAN**

FILE: GTBRAYFootballandSo  
JOB NO.: 2017.70  
DATE: 11/14/2017  
PLOT SIZE: 1:1  
DRAWN BY: CMD/MC  
CHECKED BY: MC  
SHEET No.: **E2.3**







**PLAN NOTES:**

- ① LIGHTING TO BE RE-AIMED PER MUSCO INSTRUCTIONS.
  - Ⓐ POLE LOCATION IDENTIFIER- EX: POLE A1
- GENERAL NOTES:  
THE THREE SOCCER FIELD POLES AND LIGHTING ARE NEW:  
S4, S5, AND S6.

1  
E2.5  
**HORIZONTAL PHOTOMETRICS - SOCCER**  
1/32" = 1'-0"

SEAL  
MATTREY, J. CAMDEN  
FL #29284


**ATP ENGINEERING SOUTH, FL**  
BRADENTON, FLORIDA  
ENGR. BUSINESS #8908  
941-751-6485

DATE	DESCRIPTION

**GT BRAY FOOTBALL AND SOCCER FIELDS**  
LIGHTING PROJECT  
5502 33RD AVE. DR. W.  
BRADENTON, FL 34209  
WA# 3

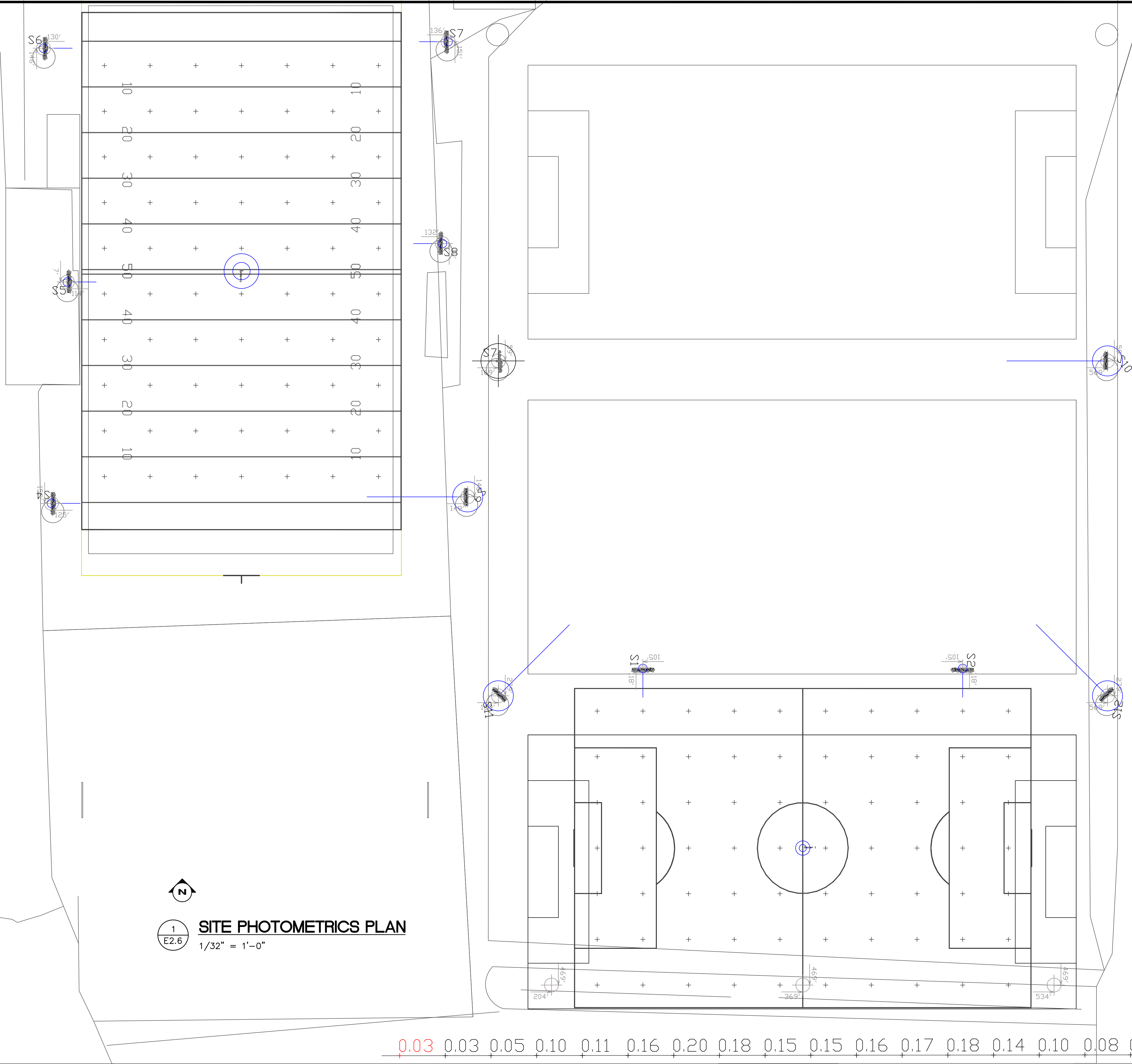
DRAWING TITLE  
**GT BRAY**  
**PHOTOMETRIC SITE**  
**PLAN**

FILE: GTBRAYFootballandSo  
JOB NO.: 2017.70  
DATE: 11/14/2017  
PLOT SIZE: 1:1  
DRAWN BY: CMD/MC  
CHECKED BY: MC  
SHEET No.: **E2.5**


  
**1**
  
**E2.6**
  
**SITE PHOTOMETRICS PLAN**
  
 1/32" = 1'-0"

0.03 0.03 0.05 0.10 0.11 0.16 0.20 0.18 0.15 0.15 0.16 0.17 0.18 0.14 0.10 0.08 0.04

0.05 0.08 0.17 0.33 0.53 0.64 0.59 1.01 3.26 5.00 4.61 4.42 4.92 4.91 2.06 0.54 0.12

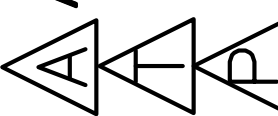


**E2.6**

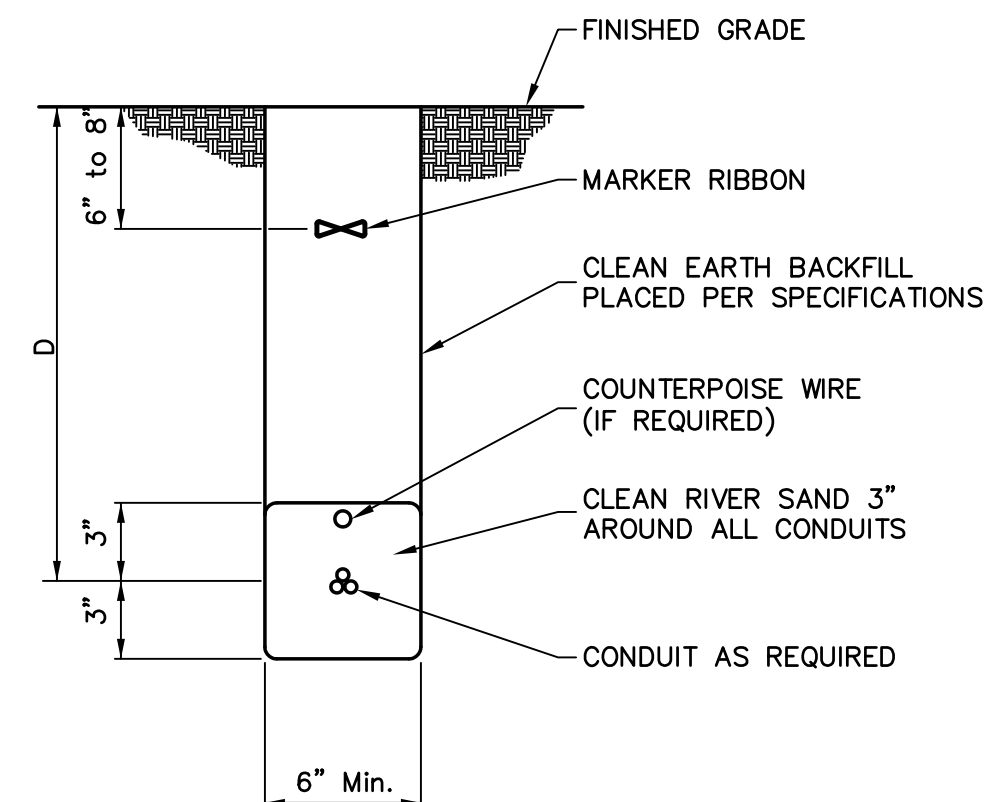
DRAWING TITLE:  
**GT BRAY SITE  
 PHOTOMETRICS PLAN**

**GT BRAY FOOTBALL AND SOCCER FIELDS  
 LIGHTING PROJECT**  
 5502 33RD AVE. DR. W.  
 BRADENTON, FL 34209  
 WA# 3

REV#	DESCRIPTION	DATE

SEAL  
**ATP ENGINEERING SOUTH, FL**  
 BRADENTON, FLORIDA  
 ENGR. BUSINESS #8808  
 941-751-6485  

  
 MATTHEW J. CAMDEN  
 FL#19284

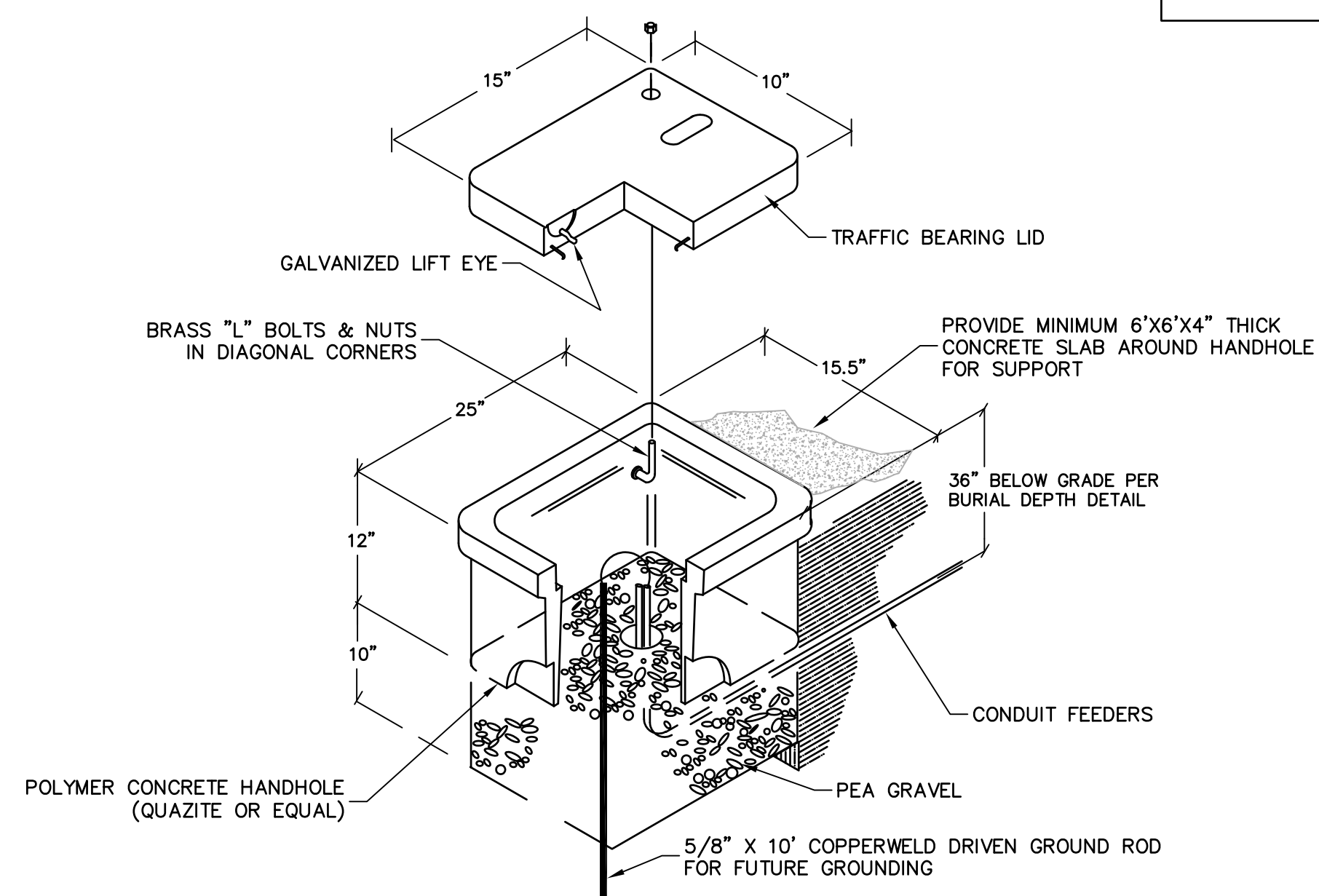
FILE: GTBRAYFootballandSo  
 JOB NO.: 2017.70  
 DATE: 11/14/2017  
 PLOT SIZE: 1:1  
 DRAWN BY: CMD/MC  
 CHECKED BY: MC  
 SHEET No.:



BURIAL DEPTH	
SERVICE	"D"
CCTV cable	1'-6"
Telephone	2'-0"
Power under 600V	3'-0"
Medium voltage power	3'-0"

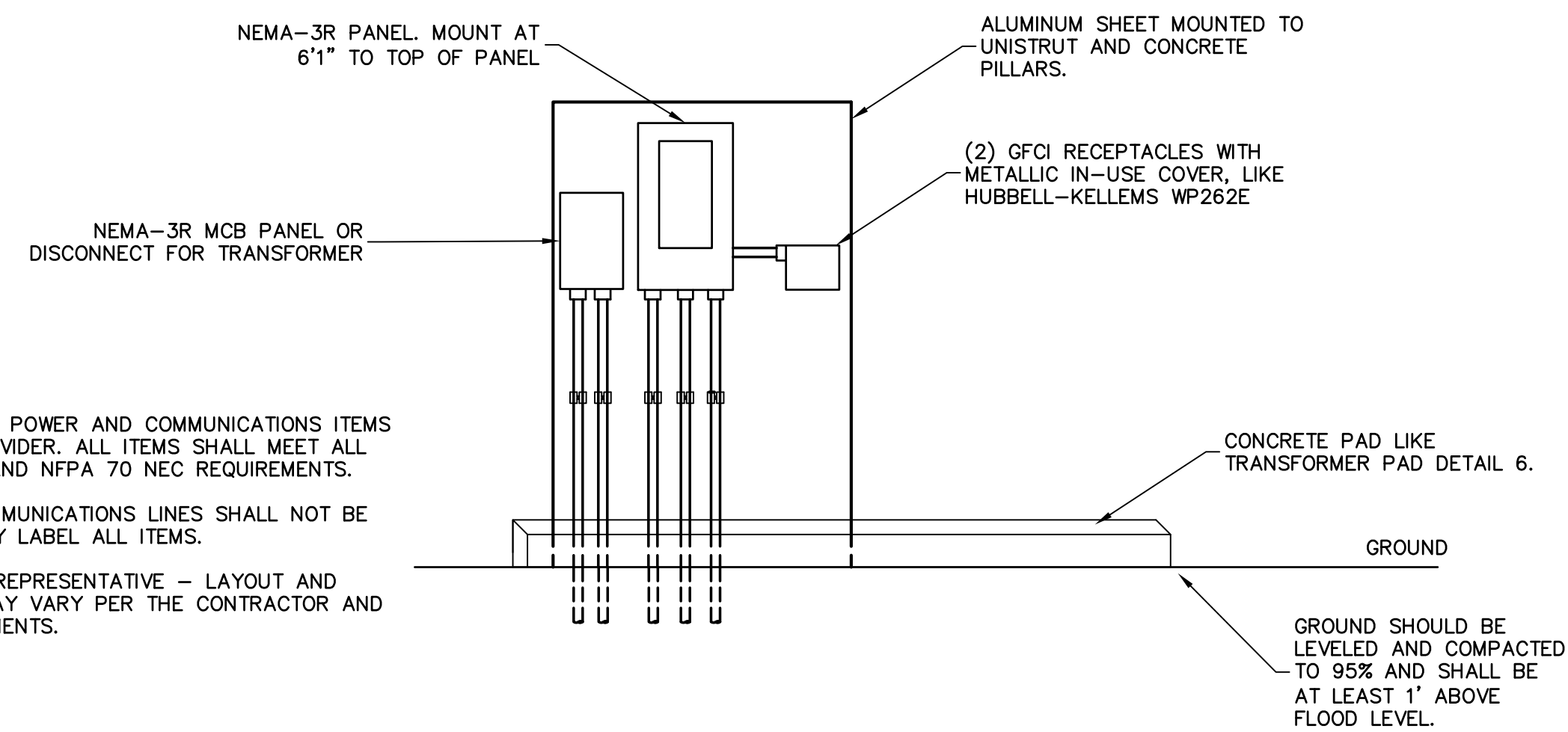
**NOTE:**  
USE BURIAL DEPTHS SHOWN ON TABLE UNLESS NOTED OTHERWISE IN SPECIFICATIONS OR ON DRAWINGS. BURIAL DEPTHS FOR UTILITY COMPANY CABLES SHALL BE AS DIRECTED BY THE UTILITY COMPANY.

**2**  
E4.0 CONDUIT BURIAL DETAIL  
NOT TO SCALE



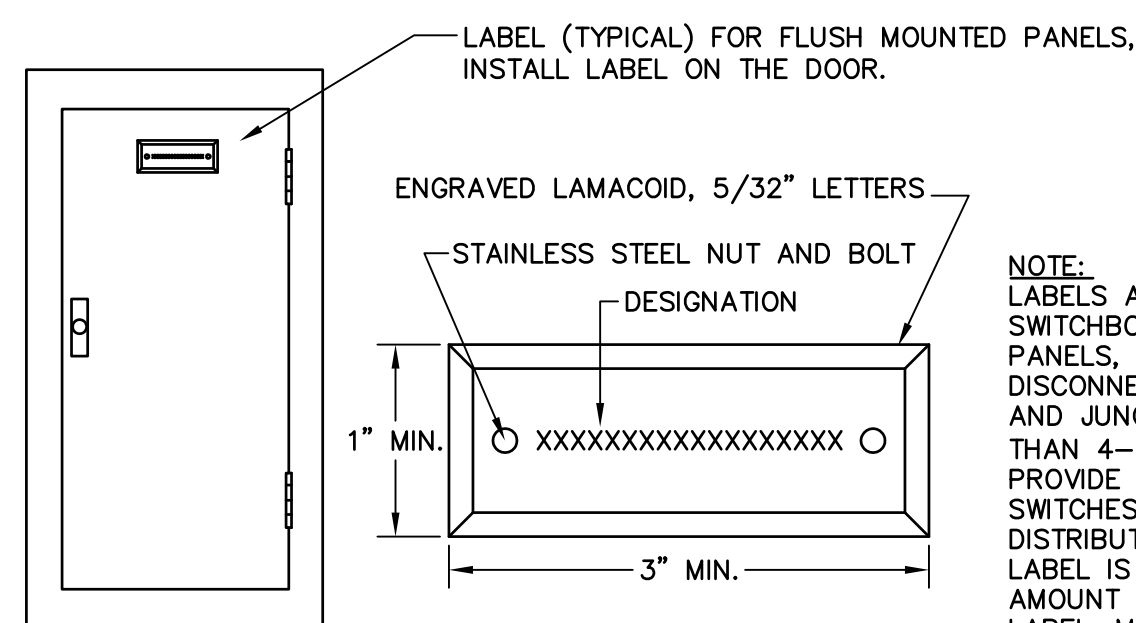
**NOTE:**  
HANDHOLES TO BE LIKE QUAZITE PG STYLE, TIER 22 WITH DRIVE-OVER RATED ONE-PIECE COVER.  
COVER TO HAVE "ELECTRICAL" LOGO.  
COORDINATE SIZES OF HANDHOLE WITH SIZE AND QUANTITY OF CONDUITS.  
PROVIDE CAPS ON CONDUITS.  
PROVIDE PULLSTRING IN ALL CONDUITS.

**5**  
E4.0 CONCRETE HANDHOLE INSTALLATION DETAIL  
NOT TO SCALE



COORDINATE ALL POWER AND COMMUNICATIONS ITEMS WITH LOCAL PROVIDER. ALL ITEMS SHALL MEET ALL LOCAL, STATE, AND NFPA 70 NEC REQUIREMENTS.  
POWER AND COMMUNICATIONS LINES SHALL NOT BE MIXED. PROPERLY LABEL ALL ITEMS.  
ALL ITEMS ARE REPRESENTATIVE - LAYOUT AND INSTALLATION MAY VARY PER THE CONTRACTOR AND UTILITY REQUIREMENTS.

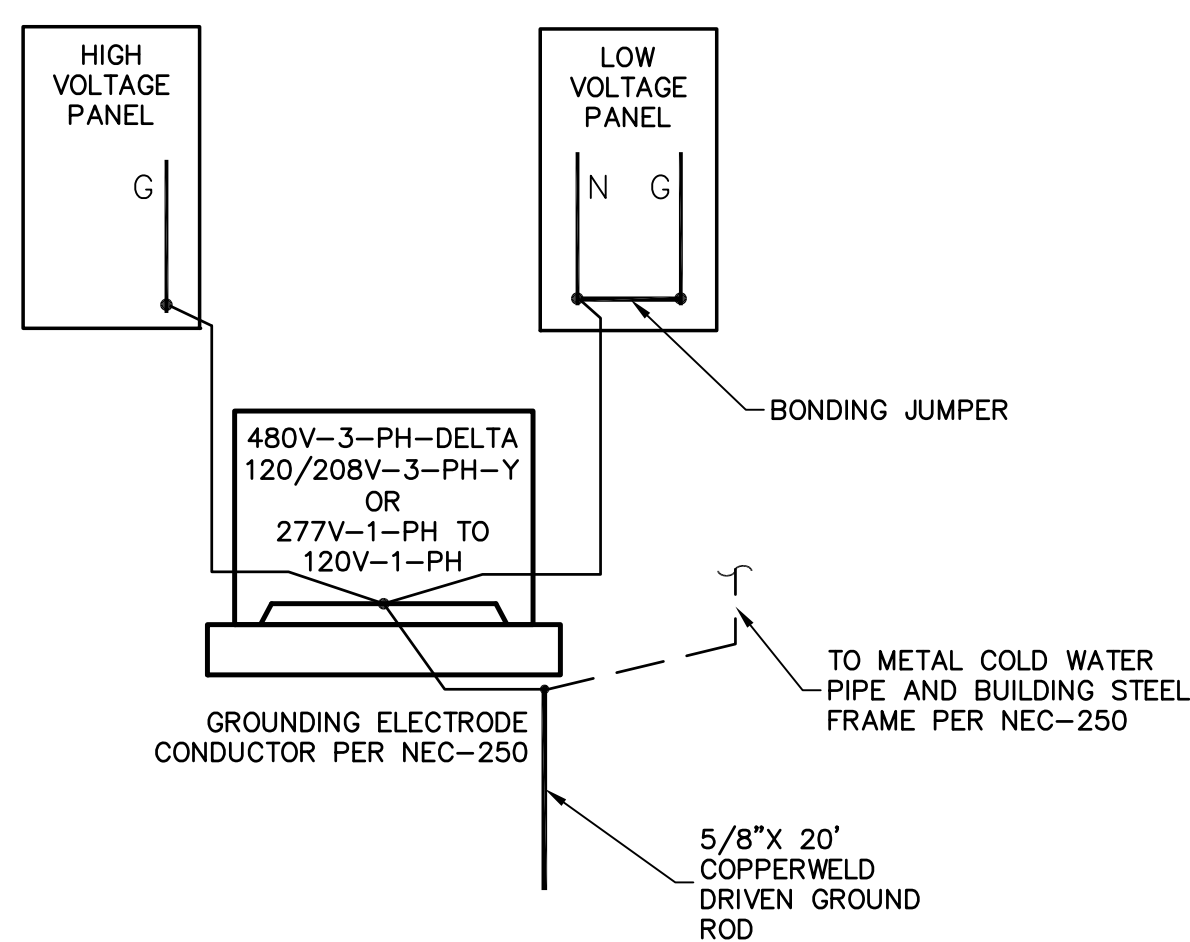
**4**  
E4.0 EXAMPLE EXTERIOR PANEL MOUNT  
NOT TO SCALE



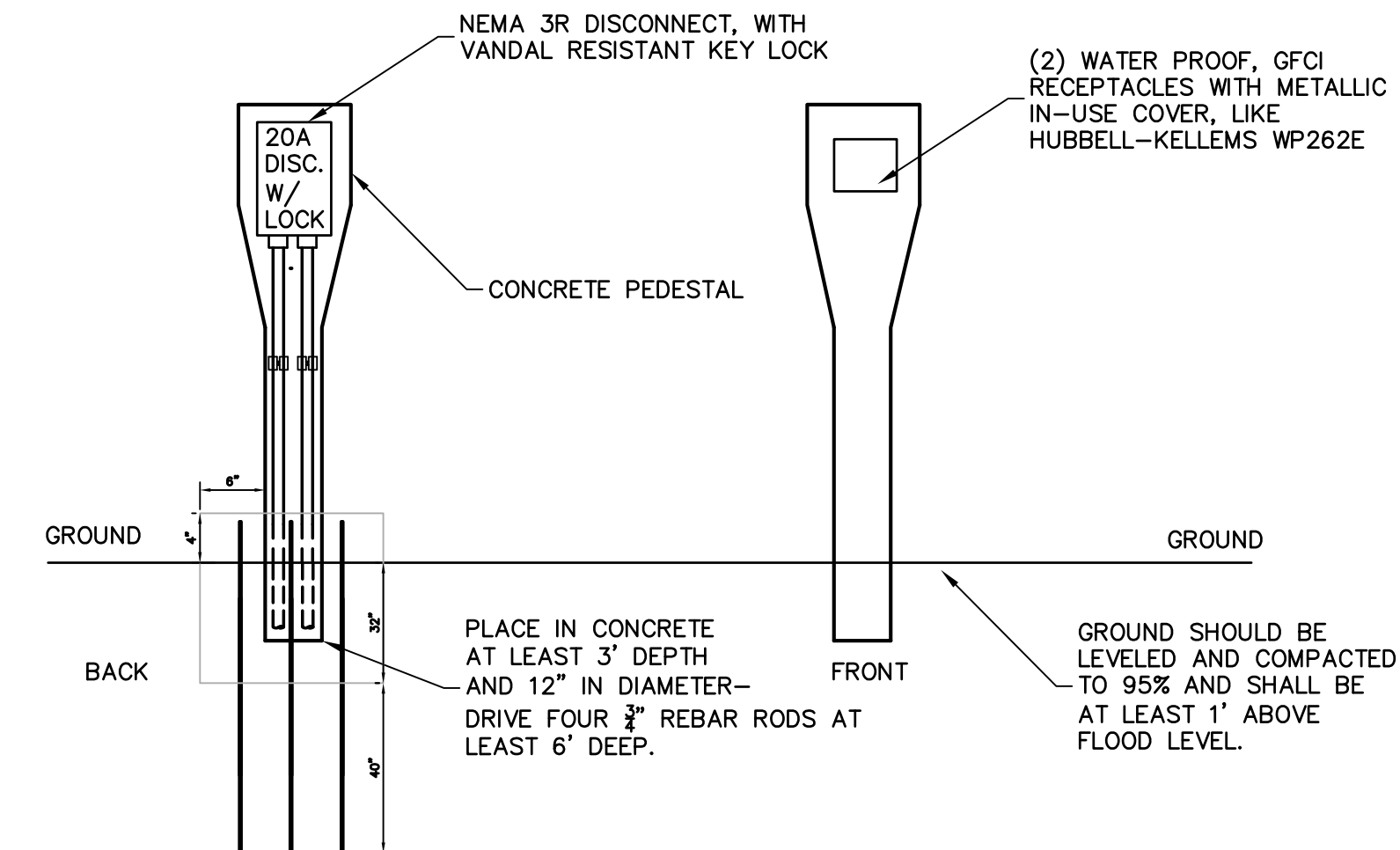
**NOTE:**  
LABELS ARE REQUIRED ON ALL SWITCHBOARDS, DISTRIBUTION PANELS, PANEL BOARDS, STARTERS, DISCONNECT SWITCHES, RELAYS, AND JUNCTION BOXES GREATER THAN 4-11/16" SQUARE. ALSO PROVIDE LABELS ON BRANCH SWITCHES OF SWITCHBOARDS AND DISTRIBUTION PANELS. SIZE OF THE LABEL IS DEPENDENT UPON THE AMOUNT OF INFORMATION ON THE LABEL. MINIMUM DIMENSIONS ARE SHOWN.

**STANDARD COLORS:**  
1. NORMAL POWER - BLACK BACKGROUND, WHITE LETTERS  
2. EMERGENCY POWER - RED BACKGROUND, WHITE LETTERING  
3. IN ADDITION TO THE FUNCTION LABELS, PROVIDE LABELS IDENTIFYING ALL "MAIN SERVICE LABEL DISCONNECTS" - RED BACKGROUND, WHITE LETTERING

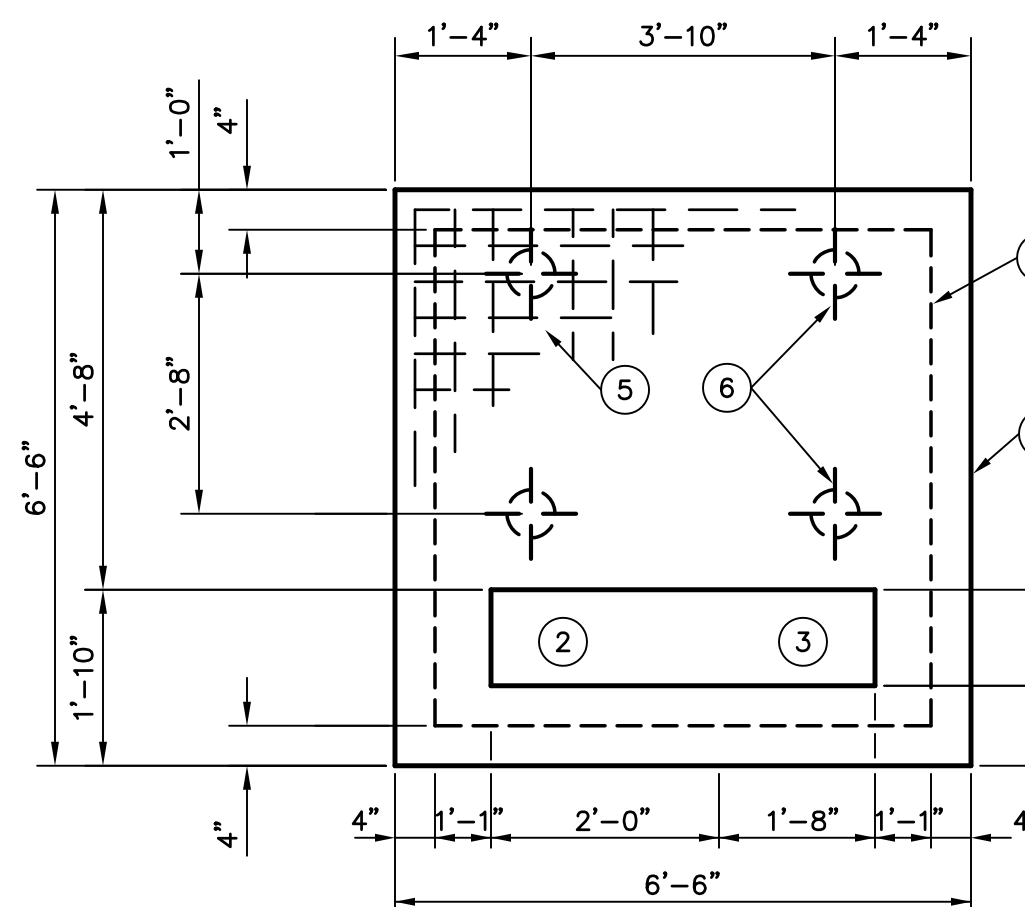
**3**  
E4.0 EQUIPMENT LABELING DETAIL  
NOT TO SCALE



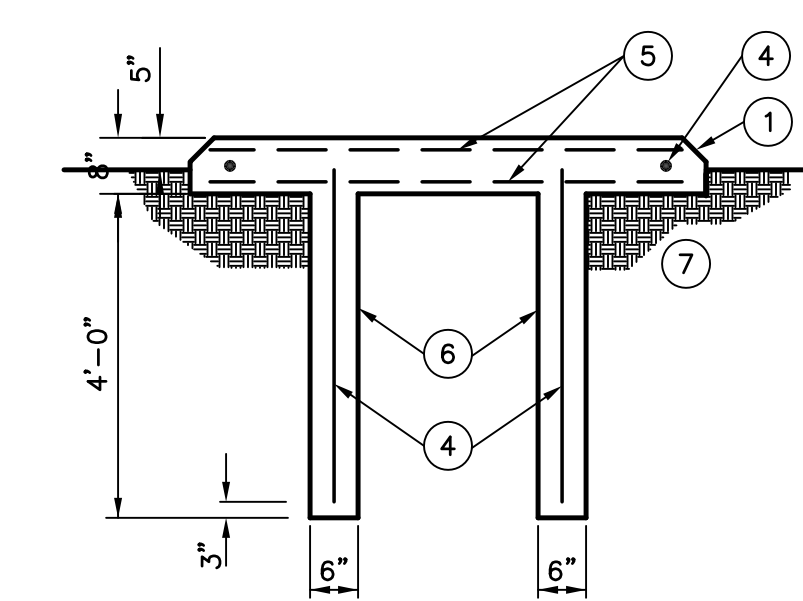
**7**  
E4.0 STEP-DOWN TRANSFORMER GROUNDING DETAIL  
NOT TO SCALE



**1**  
E4.0 EXAMPLE EXTERIOR RECEPTACLE  
NOT TO SCALE



- NOTES:**
- CONCRETE PAD WITH MINIMUM STRENGTH OF 35,000 PSI AFTER 28 DAYS. CHAMFER ALL EDGES. NO JOINTS ARE ACCEPTABLE IN THE PAD. THE TOP SHALL BE LEVEL AND SMOOTH. PROVIDE TESTING.
  - SECTION BOXED OUT FOR PRIMARY CABLES AND CONDUITS. TERMINATE CONDUITS WITH INSULATED BUSHINGS LEVEL WITH TOP OF PAD.
  - SECTION BOXED OUT FOR SECONDARY CABLES, METERING CABLES, AND CONDUITS. TERMINATE CONDUITS WITH INSULATED BUSHINGS LEVEL WITH TOP OF PAD.
  - #4 REINFORCING ROD BENT TO EXTEND AROUND THE PERIMETER OF THE PAD. LOCATE 4" FROM SIDE OF PAD. NO BREAKERS IN REINFORCING SHALL BE ALLOWED IN THE FRONT HALF OF THE PAD.
  - TWO LAYERS OF REINFORCING MESH 6" X 6", NO. 4 WIRE 2" FROM ALL SIDES, EDGES, TOP, OR BOTTOM OF CONCRETE.
  - FOUR 6" DIAMETER FOOTINGS INTO UNDISTURBED EARTH. EACH FOOTING SHALL HAVE ONE #4 REINFORCING BAR EXTENDING WITHIN 3" OD THE BOTTOM OF THE FOOTING WITH AN ADDITIONAL 6" BEND INTO THE CONCRETE PAD.
  - WHERE EARTH UNDER THE CONCRETE PAD IS DISTURBED, BACKFILL WITH CLEAN DIRT HAVING NO ROCKS OR OTHER DEBRIS AND TAMP. SAND BACKFILL SHALL NOT BE ACCEPTABLE.



**6**  
E4.0 45KVA TRANSFORMER PAD DETAIL  
NOT TO SCALE



**GENERAL ELECTRICAL NOTES:**

(APPLY TO ALL ELECTRICAL SHEETS)

- PROVIDE COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM.
- ALL WORK SHALL CONFORM TO OR EXCEED THE MINIMUM REQUIREMENTS OF THE CURRENT ANSI/NFPA 70 WITH STATE OF FLORIDA AMENDMENTS, ANSI/IEEE C2 AND ALL FEDERAL, STATE, LOCAL, AND MUNICIPAL CODES AND ORDINANCES. THE ELECTRICAL SUBCONTRACTOR SHALL COMPLY WITH THE DIRECTIONS OF ALL AUTHORITIES HAVING JURISDICTION.
- INSTALL WORK USING PROCEDURES DEFINED IN NECA STANDARDS OF INSTALLATION. ALL WORK SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED.
- THE ELECTRICAL SUBCONTRACTOR SHALL PROVIDE ALL FLOOR, WALL, AND CEILING PENETRATIONS TO COMPLETE HIS WORK. PROVIDE PROPER FIRE SAFING FOR ALL PENETRATIONS MADE.
- COORDINATE ALL ELECTRICAL WORK WITH ALL OTHER TRADES TO ENSURE EFFECTIVE AND EFFICIENT OVERALL INSTALLATION.
- COORDINATE ALL ELECTRICAL SYSTEM DOWNTIME WITH THE OWNER, PERFORMANCE SERVICES, AND OTHER TRADES. DOWNTIME OF THE SYSTEM SHALL BE MINIMIZED. WEEKEND AND AFTER HOUR WORK SHALL BE REQUIRED TO PREVENT OR MINIMIZE INTERFERENCE WITH THE OWNER'S OPERATION.
- THE LOCATIONS OF NEW RECEPTACLES AND ROOM EQUIPMENT SHOWN ON THESE DRAWINGS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED DURING THE CONSTRUCTION PHASE.
- ALL NEW EQUIPMENT SHALL BE SUBMITTED FOR APPROVAL PRIOR TO ORDERING.
- PHYSICAL SIZES AND LOCATIONS OF ALL MECHANICAL EQUIPMENT SHOWN ON THESE DRAWINGS ARE APPROXIMATE. COORDINATE ELECTRICAL WORK FOR THIS EQUIPMENT WITH THE OTHER TRADES.
- PROVIDE APPROPRIATE SEALANT (I.E. FIRESAFING) TO MAINTAIN CONSTRUCTION INTEGRITY FOR ANY PENETRATIONS THROUGH FLOORS, STRUCTURAL CEILINGS, AND FIRE WALLS.
- ALL BRANCH CIRCUITS SHALL UTILIZE SEPARATE INDEPENDENT NEUTRAL CONDUCTOR, AND INSULATED GROUNDING CONDUCTOR. DO NOT COMBINE NEUTRAL CONDUCTORS.
- ALL FEEDER NEUTRAL/GROUNDED CONDUCTORS SHALL BE CONSIDERED CURRENT CARRYING. DE-RATE MULTIPLE CONDUCTORS IN A RACEWAY ACCORDINGLY WITH NEC TABLES.
- INSTALL ALL CONDUITS, RACEWAYS, AND CABLE TRAY FOR MAXIMUM HEAD CLEARANCE IN MECHANICAL AREAS, AND ATTIC. COORDINATE CLEARANCES WITH PERFORMANCE SERVICES AND THE OWNER.
- ALL ELECTRICAL SERVICE WORK SHALL COMPLY WITH THE LOCAL UTILITY. COORDINATE ALL REQUIREMENTS AND MAXIMUM AVAILABLE FAULT CURRENT PRIOR TO BID AND INCLUDE ALL NECESSARY MATERIAL AND LABOR REQUIRED FOR THE ADDITION TO THE ELECTRICAL SERVICE. THE UTILITY FEES SHALL BE INCLUDED IN THE BID AS A LINE ITEM.
- CONTRACTOR SHALL DEMOLISH ANY REMAINING EXISTING ELECTRICAL EQUIPMENT, DEVICES, CONDUIT, FIXTURES, WIRE, UTILITY TRANSFORMER, ETC. COMPLETE. FIELD VERIFY EXACT REQUIREMENTS PRIOR TO BID. ALL REMOVED EQUIPMENT/FIXTURES SHALL BE TURNED OVER TO THE OWNER.
- CAP AND FIRE STOP ALL EXISTING UNUSED CONDUITS AND CONDUIT PENETRATIONS THROUGH THE FLOOR AND TO THE FLOOR ABOVE.
- TEST GROUNDING SYSTEM AFTER COMPLETION OF JOB TO INSURE PROPER GROUND CONDUCTIVITY.
- RECORD DRAWINGS: PROVIDE AMPERE READINGS ON ALL PANELBOARDS TO PROVE PANELS ARE BALANCED. PROVIDE PHASE ROTATION READINGS ON ALL PANELBOARDS.

**SSD/SPD/TVSS**

PROVIDE AND INSTALL AT ALL SWITCHBOARD, DISTRIBUTION PANELBOARDS AND PANELBOARD LOCATION'S, TRANSIENT VOLTAGE SURGE SUPPRESSER'S (TVSS), FOR EACH SHOWN WITH THE FOLLOWING REQUIREMENTS: RATED AND TESTED FOR CATEGORY C (8 BY 20 MICROSECOND WAVE FORM) AS DEFINED BY ANSI/IEEE C62.41.  
 WITH SYSTEM VOLTAGE RATING: 120/240V, 1 PHASE, 3 WIRE GROUNDED, 60HZ; PROTECTION MODES: EACH LINE TO NEUTRAL, EACH LINE TO GROUND, NEUTRAL TO GROUND, MAXIMUM SURGE CURRENT CAPACITY (8 X 20 MICROSECONDS) FOR MULTIPLE OCCURRENCES: MINIMUM CAPACITY ALLOWED IS 160,000 AMPS PER PHASE FOR BRANCH PANELBOARDS AND 240,000 AMPS FOR SWITCHBOARDS AND DISTRIBUTION PANELBOARDS. UL-1449 VOLTAGE SUPPRESSION RATING: L-N, 800, L-G = 800 AND N-G = 800 FOR 120/240 VOLT SYSTEMS. PROVIDE WITH INTEGRAL SURGE RATED FUSE, THERMAL CUTOFF DEVICE, MODULE STATUS INDICATOR LIGHTS, UNIT STATUS INDICATOR LIGHTS, AUDIBLE ALARM AND SILENCE SWITCH, AND TRANSIENT COUNTER, AND SHALL BE UL 1283 LISTED, AND COMPLY WITH UL 1449 2ND EDITION. ACCEPTABLE MANUFACTURERS: GE, TRANQUELL, LEA, JOSLYN, INNOVATIVE TECHNOLOGY, SQUARE D, OR APPROVED EQUAL. INTEGRATED OR EXTERNAL MOUNTED.

**ELECTRICAL SPECIFICATIONS:**

(APPLY TO ALL ELECTRICAL SHEETS)

- PROVIDE AND INSTALL NEW GREEN INSULATED COPPER GROUNDING CONDUCTORS AS THE EQUIPMENT GROUNDING MEANS FOR ALL ELECTRICAL DEVICES AND EQUIPMENT.
- ALL NEW PANELBOARDS AND SWITCHBOARDS SHALL HAVE COPPER BUS, COPPER GROUND BAR, AND RATINGS AS SPECIFIED. REFERENCE STANDARDS SHALL BE GENERAL ELECTRIC "A" SERIES "PRO-STOCK" BRANCH PANELS AND SPECTRA SERIES DISTRIBUTION PANELS WITH BOLT IN TYPE CIRCUIT BREAKERS OR EQUIVALENT PRODUCTS.
- PROVIDE LABELING FOR ALL PANELBOARDS, SWITCHBOARDS, AND DISCONNECT SWITCHES TOUCHED IN THIS PROJECT, TO INCLUDE AN ENGRAVED PLASTIC LABEL IDENTIFYING THE EQUIPMENT AND WHERE IT IS FED FROM.
  - ALL BRANCH DEVICES IN THE MAIN SWITCHBOARD SHALL HAVE AN ENGRAVED PLASTIC LABEL.
  - ALL PANELBOARDS SHALL INCLUDE A TYPEWRITTEN DIRECTORY. ALL RECEPTACLES SHALL HAVE CIRCUIT NUMBERS WRITTEN ON THE INSIDE OF THE COVERPLATE.
  - ALL JUNCTION BOX COVERS SHALL BE IDENTIFIED TO INDICATE CIRCUITS CONTAINED. WHERE MULTIPLE SWITCHES ARE GANGED TOGETHER THE SWITCHES SHALL BE IDENTIFIED.
  - PROVIDE (1) 3/4" SPARE CONDUIT FOR EACH 3 SPACES OR SPARES IN EACH FLUSH MOUNTED PANEL FROM PANEL TO ABOVE ACCESSIBLE CEILING FOR FUTURE USE.
- ALL CONDUIT INSIDE THE BUILDING SHALL BE A ELECTRICAL METALLIC TUBING (EMT) AND SHALL BE A MINIMUM 1/2" UNLESS OTHERWISE NOTED. ALL CONDUIT INSTALLED UNDERGROUND SHALL BE SCHEDULE 40 PVC UNLESS OTHERWISE NOTED. ALL CONDUIT INSTALLED ABOVE GRADE OUTSIDE THE BUILDING SHALL BE GALVANIZED RIGID STEEL. NO PVC CONDUIT SHALL BE USED ABOVE THE FLOOR SLAB.
- ALL ELECTRICAL CONNECTORS, LUGS, BREAKERS, EQUIPMENT, ETC. SHALL BE RATED AT A MINIMUM OF 75 DEG. C.
- WIRING METHODS:
 

ALL WIRING SHALL BE COPPER. NO ALUMINUM WIRING WILL BE ALLOWED.  
MC TYPE CABLE SHALL NOT BE USED.
- SWITCHES SHALL BE 20 AMPERE RATED, 120/277 VOLT, LEVITON 1221-21 SERIES OR APPROVED EQUAL, UNLESS OTHERWISE NOTED.
  - SWITCHES CONTROLLING LIGHTING SHALL HAVE NEUTRAL CONDUCTOR.
- RECEPTACLES SHALL BE 20A, 120V GROUNDING TYPE LIKE LEVITON 5340 SERIES, UNLESS OTHERWISE NOTED.
  - WHITE IN COLOR
  - PROVIDE GROUND FAULT CIRCUIT-INTERRUPTER (GFI) TYPE RECEPTACLE IF SHOWN OR AS REQUIRED BY NEC.
- ALL COVERPLATES FOR INTERIOR WIRING DEVICES SHALL BE WHITE NYLON TYPE. DEVICES SHALL BE WHITE IN COLOR.
- ALL EXTERIOR RECEPTACLES SHALL BE GFCI (GFI) TYPE AND HAVE IN-USE TYPE WEATHERPROOF COVERPLATES.

**EXTERIOR SPORTS LIGHTING SPECIFICATIONS:**

LED OPTION #1  
 PART 1 - GENERAL

**1.1 SUMMARY**

- WORK COVERED BY THIS SECTION OF THE SPECIFICATIONS SHALL CONFORM TO THE CONTRACT DOCUMENTS, ENGINEERING PLANS AS WELL AS STATE AND LOCAL CODES.
- THE PURPOSE OF THESE SPECIFICATIONS IS TO DEFINE THE PERFORMANCE AND DESIGN STANDARDS FOR G.T. BRAY FOOTBALL AND SOCCER FIELDS IN BRADENTON, FL. THE MANUFACTURER/CONTRACTOR SHALL SUPPLY LIGHTING EQUIPMENT TO MEET OR EXCEED THE STANDARDS SET FORTH IN THESE SPECIFICATIONS.
- THE SPORTS LIGHTING WILL BE FOR THE FOLLOWING VENUES:
  - 1 (6 POLES-EXISTING) FOOTBALL FIELD
  - 1 (3 POLES-NEW) SOCCER FIELD
- THE PRIMARY GOALS OF THIS SPORTS LIGHTING PROJECT ARE:
  - GUARANTEED LIGHT LEVELS: SELECTION OF APPROPRIATE LIGHT LEVELS IMPACT THE SAFETY OF THE PLAYERS AND THE ENJOYMENT OF SPECTATORS. THEREFORE LIGHT LEVELS ARE GUARANTEED TO NOT DROP BELOW SPECIFIED TARGET VALUES FOR A PERIOD OF 25 YEARS.
  - LIFE-CYCLE COST: IN ORDER TO REDUCE THE OPERATING BUDGET, THE PREFERRED LIGHTING SYSTEM SHALL BE ENERGY EFFICIENT AND COST EFFECTIVE TO OPERATE. ALL MAINTENANCE COSTS SHALL BE ELIMINATED.
  - CONTROL AND MONITORING: TO ALLOW FOR OPTIMIZED USE OF LABOR RESOURCES AND AVOID UNNEEDED OPERATION OF THE FACILITY, CUSTOMER REQUIRES A REMOTE ON/OFF CONTROL SYSTEM FOR THE LIGHTING SYSTEM. FIELDS SHOULD BE PROACTIVELY MONITORED TO DETECT LUMINAIRE OUTAGES OVER A 25-YEAR LIFE CYCLE. ALL COMMUNICATION AND MONITORING COSTS FOR 25-YEAR PERIOD SHALL BE INCLUDED IN THE BID.
  - ENVIRONMENTAL LIGHT CONTROL: IT IS THE PRIMARY GOAL OF THIS PROJECT TO MINIMIZE SPILL LIGHT TO ADJOINING PROPERTIES AND GLARE TO THE PLAYERS AND SPECTATORS.

**1.2 LIGHTING PERFORMANCE**

- PERFORMANCE REQUIREMENTS: PLAYING SURFACES SHALL BE LIT TO AN AVERAGE TARGET ILLUMINATION LEVEL AND UNIFORMITY AS SPECIFIED IN THE CHART BELOW. LIGHTING CALCULATIONS SHALL BE DEVELOPED AND FIELD MEASUREMENTS TAKEN ON THE GRID SPACING WITH THE MINIMUM NUMBER OF GRID POINTS SPECIFIED BELOW. AVERAGE ILLUMINATION LEVEL SHALL BE MEASURED IN ACCORDANCE WITH THE IESNA LM-5-04 (IESNA GUIDE FOR PHOTOMETRIC MEASUREMENTS OF AREA AND SPORTS LIGHTING INSTALLATIONS). ILLUMINATION LEVELS SHALL NOT TO DROP BELOW DESIRED TARGET VALUES IN ACCORDANCE TO IES RP-6-01, PAGE 5, MAINTAINED AVERAGE ILLUMINANCE AND SHALL BE GUARANTEED FOR THE FULL WARRANTY PERIOD. HOURS OF USAGE SHALL COMPLY WITH THE FOLLOWING:
 

AREA OF LIGHTING	ANNUAL USAGE HOURS	25 YEAR USAGE HOURS
FOOTBALL	425	10,625
SOCCER	425	10,625

AREA OF LIGHTING	ANNUAL USAGE HOURS	25 YEAR USAGE HOURS
FOOTBALL	425	10,625
SOCCER	425	10,625

MOUNTING HEIGHTS: TO ENSURE PROPER AIMING ANGLES FOR REDUCED GLARE AND TO PROVIDE BETTER PLAYABILITY, MINIMUM MOUNTING HEIGHTS SHALL BE PER PLANS AND SPECIFICATIONS. HIGHER MOUNTING HEIGHTS MAY BE REQUIRED BASED ON PHOTOMETRIC REPORT AND ABILITY TO ENSURE THE TOP OF THE FIELD ANGLE IS A MINIMUM OF 10 DEGREES BELOW HORIZONTAL.

# OF POLES	POLE DESIGNATION	POLE HEIGHT
6(EXISTING)	FOOTBALL	60' & 70' (SEE LAYOUT)
6(EXISTING)(RE-AIMING OF LIGHTS)	SOCCER	60' & 70' (SEE LAYOUT)
3(NEW)	SOCCER	(SEE LAYOUT)

LIGHTING METHODOLOGY: THERE ARE TWO METHODS THAT WILL BE CONSIDERED FOR CALCULATION OF THE LIGHTING DESIGNS FOR THIS PROJECT. THE APPROVED LIGHTING METHOD #1, AUTOMATED TIMED POWER ADJUSTMENTS, AS DESCRIBED IN C.1 UTILIZES METHODOLOGY THAT ADJUSTS LIGHT LEVELS THROUGH A SERIES OF PROGRAMMED ADJUSTMENTS. THE ALTERNATE LIGHTING METHOD #2, CONTINUOUS DEPRECIATING LIGHT, AS DESCRIBED IN C.2 USES CONTINUOUS LAMP LUMEN DEPRECIATION WHICH IS RECOVERED BY RELAMPING AND CLEANING LENSES OF THE LUMINAIRES. COMPUTER MODELS SHALL REFLECT INITIAL DESIGN LUMENS, END OF LIFE DESIGN LUMENS, RECOVERABLE LIGHT LOSS FACTOR (RLLF), AND THE COEFFICIENT UTILIZATION (CU) FOR THE DESIGN. BOTH METHODS MUST BE AT OR ABOVE TARGET ILLUMINATION LEVELS THROUGHOUT THE 25 YEARS OF THE CONTRACT/WARRANTY PROVIDED BY THE MANUFACTURER. A +/- 10% DESIGN/TESTING ALLOWANCE IS NOT PERMITTED IN THE DESIGN LOGIC.

**1. LIGHTING METHOD #1: AUTOMATED TIMED POWER ADJUSTMENTS:**

- THE LIGHTING SYSTEM SHALL USE AUTOMATED TIMED POWER ADJUSTMENTS TO ACHIEVE A LUMEN MAINTENANCE CONTROL STRATEGY AS DESCRIBED IN THE IESNA LIGHTING HANDBOOK 10TH EDITION, LIGHTING CONTROLS SECTION PAGE 16-8: "LUMEN MAINTENANCE INVOLVES ADJUSTING LAMP OUTPUT OVER TIME TO MAINTAIN CONSTANT LIGHT OUTPUT AS LAMPS AGE AND DIRT ACCUMULATION REDUCES LUMINAIRE OUTPUT. WITH LUMEN MAINTENANCE CONTROL, EITHER LAMPS ARE DIMMED WHEN NEW, OR THE LAMP'S CURRENT IS INCREASED AS THE SYSTEM AGES."
- MANUFACTURERS BIDDING AN AUTOMATED TIMED POWER ADJUSTMENT SYSTEM MUST PROVIDE AN INDEPENDENT TEST REPORT CERTIFYING THE SYSTEM MEETS THE LUMEN MAINTENANCE CONTROL STRATEGY ABOVE AND VERIFYING THE FIELD PERFORMANCE OF THE SYSTEM FOR THE DURATION OF THE USEFUL LIFE OF THE LAMP BASED ON LAMP REPLACEMENT HOURS. REPORT SHALL BE SIGNED BY A LICENSED PROFESSIONAL ENGINEER WITH OUTDOOR LIGHTING EXPERIENCE. IF REPORT IS NOT PROVIDED AT LEAST 10 DAYS PRIOR TO BID OPENING, THE MANUFACTURER SHALL PROVIDE THE INITIAL AND MAINTAINED DESIGNS CALLED FOR IN THIS SPECIFICATION UNDER LIGHTING METHOD #2: ALTERNATE MANUFACTURERS, SECTION 1.2.C.2.
- PROJECT REFERENCES: MANUFACTURERS BIDDING ANY FORM OF AUTOMATED TIMED POWER ADJUSTMENT LIGHT SYSTEM MUST PROVIDE A MINIMUM OF (10) PROJECT REFERENCES WITHIN THE STATE OF FL THAT HAVE BEEN COMPLETED WITHIN THE LAST 36 MONTHS UTILIZING THIS EXACT TECHNOLOGY. MANUFACTURER WILL INCLUDE PROJECT NAME, PROJECT CITY, AND IF REQUESTED, CONTACT NAME AND CONTACT PHONE NUMBER FOR EACH REFERENCE.

AREAS OF LIGHTING	AVERAGE TARGET ILLUMINATION LEVELS	MAX TO MIN UNIFORMITY RATIO	GRID POINTS	GRID SPACING
FOOTBALL	30 FC	2.5:1	98	30'X30'
SOCCER	20 FC	2.5:1	72	30'X30'

**LIGHTING METHOD #2 - CONTINUOUS DEPRECIATING LIGHT**

THE LIGHTING SYSTEM SHALL USE CONTINUOUS LAMP LUMEN DEPRECIATION WHICH IS RECOVERED BY RELAMPING AND CLEANING LENSES OF THE LUMINAIRES. MANUFACTURER SHALL PROVIDE COMPUTER MODELS FOR INITIAL ILLUMINATION LEVEL AND TARGET ILLUMINATION LEVELS ON THE FIELD OVER 25 YEARS. THE SPECIFIED MAXIMUM RECOVERABLE LIGHT LOSS FACTOR (RLLF) OF .69 AND MAINTENANCE/GROUP RELAMPING SCHEDULE SHALL BE PROVIDED IN ACCORDANCE WITH RECOMMENDATIONS IN THE LEUKOS ABSTRACT VOLUME 6, NUMBER 3, JANUARY 2010, PAGE 183-201; LIGHT LOSS FACTORS FOR SPORTS LIGHTING, AND PRESENTED AT THE 2009 IESNA ANNUAL CONFERENCE.

LAMP REPLACEMENT INTERVAL (HOURS)	1500 W LUMINAIRE RLLF REQUIREMENTS	RECOVERABLE LIGHT LOSS FACTOR (RLLF)
2,100		0.69

INDEPENDENT TEST REPORT: IF LAMP REPLACEMENT INTERVAL IS GREATER THAN 3,000 HOURS FOR 1500 WATT LAMPS, MANUFACTURER SHALL SUPPLY AN INDEPENDENT TEST REPORT WITH LUMEN DEPRECIATION OVER PROPOSED LAMP LIFE, INITIAL LUMENS, AND END OF LIFE LUMENS.  
 b. BASED ON ANTICIPATED HOURS OF USAGE (425 HOURS PER YEAR), METHOD #2 SYSTEMS WOULD REQUIRE A MINIMUM OF 5 GROUP LAMP REPLACEMENTS OVER THE 25 YEARS.

AREA OF LIGHTING	AVERAGE INITIAL ILLUMINATION LEVELS	AVERAGE TARGET (SEE ABOVE FOR GRID INFO) ILLUMINATION LEVELS
FOOTBALL	30 FC	30 FC
SOCCER	20 FC	20 FC

REVISED ELECTRICAL DISTRIBUTION: MANUFACTURER SHALL PROVIDE REVISED ELECTRICAL DISTRIBUTION PLANS TO INCLUDE CHANGES TO SERVICE ENTRANCE, PANEL, AND WIRE SIZING IF INCREASED POWER IS REQUIRED WHICH EXCEEDS SPECIFIED DESIGN LOADS.

**1.3 ENVIRONMENTAL LIGHT CONTROL**

- SPILL LIGHT CONTROL: ALL FIXTURES SHALL UTILIZE MAXIMUM SPILL LIGHT AND GLARE CONTROL DEVICES INCLUDING, BUT NOT LIMITED TO, INTERNAL SHIELDS, LOUVERS AND EXTERNAL SHIELDS.
- SPILL LIGHT CONTROL: MAXIMUM INITIAL HORIZONTAL FOOTCANDLES AT THE PROPERTY LINE SHALL NOT EXCEED THE EXISTING 5.5 FC LEVEL- AS SHOWN ON SHEET E2.6. FOOTCANDLE READINGS SHALL BE TAKEN AT 30-FOOT INTERVALS ALONG THE SPECIFIED LINE. ILLUMINATION LEVEL SHALL BE MEASURED IN ACCORDANCE WITH THE IESNA LM-5-04 AT THE FIRST 100 HOURS OF OPERATION.
- PHOTOMETRIC REPORTS MUST BE PROVIDED TO DEMONSTRATE THE CAPABILITY OF ACHIEVING THE FOLLOWING SPECIFIED PERFORMANCE, AS NOTED. REPORTS SHALL BE CERTIFIED BY A QUALIFIED INDEPENDENT TESTING LABORATORY WITH A MINIMUM OF FIVE YEARS EXPERIENCE OR BY A MANUFACTURER'S LABORATORY WITH A CURRENT ACCREDITATION UNDER THE NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM FOR ENERGY EFFICIENT LIGHTING PRODUCTS. IFL REPORTS WILL REMAIN CONFIDENTIAL AND BE RETURNED TO THE MANUFACTURER AFTER THE BID IS AWARDED.
- UPPER BEAM DEFINITION  
 SOCCER FIELDS - NO FIXTURE SHALL EXCEED THE CANDLEPOWER AT THE SPECIFIED DEGREES ABOVE THE CENTER OF THE BEAM IN THE VERTICAL PLANE AS SPECIFIED IN THE FOLLOWING TABLE:
 

NEMA CLASSIFICATION OF VERTICAL BEAM	CANDELA	DEGREES ABOVE THE CENTER OF THE BEAM IN VERTICAL PLANE
4	10,000	15.0 DEGREES

IF A MANUFACTURER'S PHOTOMETRIC REPORT INDICATES THAT THEY CANNOT MEET THIS CRITERIA, THEY MAY INCREASE MOUNTING HEIGHTS (SEE BELOW) TO MAINTAIN THE SAME IMPACT FOR PLAYABILITY, SPECTATOR COMFORT AND IMPACT ON THE ADJOINING PROPERTIES. IF A MANUFACTURER'S PHOTOMETRIC REPORT INDICATES THAT THEY CAN ACHIEVE 10,000 CANDELA AT AN ANGLE BELOW 15.0 DEGREES THEY MAY DECREASE MOUNTING HEIGHTS USING THE FORMULA BELOW, PROVIDING AIMING ANGLES ABIDE BY I.E.S. GOOD LIGHTING PRACTICES.

THIS MOUNTING HEIGHT INCREASE/DECREASE WILL BE CALCULATED BY REFERENCING THE FIXTURE PHOTOMETRIC REPORT AND DETERMINING THE ANGLE ABOVE OR BELOW VERTICAL THAT THE FIXTURE ACHIEVES A CANDELA READING LESS THAN OR EQUAL TO 10,000 CANDELA. POLE HEIGHTS WILL BE INCREASED/DECREASED 3.25' FOR EVERY ONE DEGREE ABOVE/BELOW 15.0 DEGREES NEEDED TO ACHIEVE A CANDELA READING OF 10,000. FOR EXAMPLE: IF 10,000 CANDELA IS ACHIEVED AT 17.0 DEGREES ABOVE VERTICAL, A MINIMUM MOUNTING HEIGHT OF 76.5' (8 POLES) (2.0 DEGREES X 3.25') WOULD BE REQUIRED FOR THE POLES.

**1.4 LIFE CYCLE COSTS**

MANUFACTURER SHALL SUBMIT 25-YEAR LIFE CYCLE COST CALCULATION AS OUTLINED IN THE REQUIRED SUBMITTAL INFORMATION. LAMP REPLACEMENT SCHEDULE PER CHARTS BELOW:

LIGHTING METHOD 1 LAMP REPLACEMENT	LIGHTING METHOD 2 LAMP REPLACEMENT
5,000 HOUR INTERVALS	2,100 HOUR INTERVALS

SEAL  
 MATTHEW J. CAMDEN  
 P.E.#29264

ATP ENGINEERING SOUTH, FL  
 BRADENTON, FLORIDA  
 ENGR. BUSINESS #8908  
 941-751-6485

DATE

REF. DESCRIPTION

**GT BRAY FOOTBALL AND SOCCER FIELDS  
 LIGHTING PROJECT  
 5502 33RD AVE. DR. W.  
 BRADENTON, FL 34209  
 WA# 3**

**DRAWING TITLE  
 GT BRAY FOOTBALL  
 AND SOCCER  
 SPECIFICATIONS**

FILE: GTBRAYFootballandSo  
 JOB NO.: 2017.70  
 DATE: 11/14/2017  
 PLOT SIZE: 1:1  
 DRAWN BY: MJC  
 CHECKED BY: MC  
 SHEET No.:  
**E6.0**

**EXTERIOR SPORTS LIGHTING SPECIFICATIONS (CONTINUED):**

**1.4 LIFE CYCLE COSTS**  
 COMPLETE LAMP REPLACEMENT: MANUFACTURER SHALL INCLUDE ALL GROUP LAMP REPLACEMENTS REQUIRED TO PROVIDE 25 YEARS OF OPERATION BASED UPON 425 HOURS OF OPERATION PER YEAR.  
 • PREVENTATIVE AND SPOT MAINTENANCE: MANUFACTURER SHALL PROVIDE ALL PREVENTATIVE AND SPOT MAINTENANCE, INCLUDING PARTS AND LABOR FOR 25 YEARS FROM THE DATE OF EQUIPMENT SHIPMENT. INDIVIDUAL LAMP OUTAGES SHALL BE REPAIRED WHEN THE USAGE OF ANY FIELD IS MATERIALLY IMPACTED. OWNER AGREES TO CHECK FUSES IN THE EVENT OF A LUMINAIRE OUTAGE.  
 REMOTE MONITORING SYSTEM:  
 • 25-YEAR LIFE CYCLE COST: MANUFACTURER SHALL SUBMIT 25-YEAR LIFE CYCLE COST CALCULATIONS AS FOLLOWS. EQUIPMENT PRICE AND TOTAL LIFE CYCLE COST SHALL BE ENTERED SEPARATELY ON BID FORM.

**A. EXAMPLE LUMINAIRE ENERGY CONSUMPTION**  
 # LUMINAIRES X \_\_\_\_\_ KW DEMAND PER LUMINAIRE X .15 KWH RATE X 500 ANNUAL USAGE HOURS X 25 YEARS TOTAL 25-YEAR ENERGY OPERATING COSTS\*\* GROUP LAMP REPLACEMENTS FOR OPTION #1 SYSTEMS MUST OCCUR IN ACCORDANCE WITH THE INDEPENDENT TEST REPORT PROVIDED BY THE MANUFACTURER; OPTION #2 SYSTEMS MUST RELAMP EVERY 2100 HOURS IN ACCORDANCE WITH RECOMMENDATIONS IN THE PENNSYLVANIA STATE UNIVERSITY REPORT "EMPIRICAL LIGHT LOSS FACTORS FOR SPORTS LIGHTING", PRESENTED AT THE 2009 IESNA ANNUAL CONFERENCE.

• MANUFACTURERS USING OPTION #1 TECHNOLOGY FOR LUMEN MAINTENANCE PER IESNA SHALL PROVIDE A 3RD PARTY INDEPENDENT REPORT VERIFYING THEIR ABILITY TO MAINTAIN REQUIRED LIGHT LEVELS. INDEPENDENT ENGINEER CONDUCTING THE REPORT MUST HAVE NO AFFILIATION WITH THE MANUFACTURER AND REPORT MUST BE BASED ON ACTUAL TESTING DATA. TESTING MUST BE DONE ON THE SYSTEM AS A WHOLE, NOT ON INDIVIDUAL COMPONENTS.  
 • WARRANTY: PROVIDE WARRANTY/MAINTENANCE DOCUMENT AS REQUIRED IN SECTION 3.4.  
 • LIFE CYCLE ANALYSIS PER SECTION 1.4.  
 • QUALITY ASSURANCE  
 • INSTALLER QUALIFICATIONS: MANUFACTURER'S AUTHORIZED REPRESENTATIVE WHO IS TRAINED AND APPROVED FOR INSTALLATION OF UNITS REQUIRED FOR THIS PROJECT

**PART 2 - PRODUCT**  
**2.1 SPORTS LIGHTING SYSTEM CONSTRUCTION**

**A. MANUFACTURING REQUIREMENTS:** ALL COMPONENTS SHALL BE DESIGNED AND MANUFACTURED AS A SYSTEM. ALL LUMINAIRES, WIRE HARNESSSES, BALLAST AND OTHER ENCLOSURES SHALL BE FACTORY ASSEMBLED, AIMED, WIRED AND TESTED.  
**B. DURABILITY:** ALL EXPOSED COMPONENTS SHALL BE CONSTRUCTED OF CORROSION RESISTANT MATERIAL AND/OR COATED TO HELP PREVENT CORROSION. ALL EXPOSED CARBON STEEL SHALL BE HOT DIP GALVANIZED PER ASTM A123. ALL EXPOSED ALUMINUM SHALL BE POWDER COATED WITH HIGH PERFORMANCE POLYESTER OR ANODIZED. ALL EXTERIOR REFLECTIVE INSERTS SHALL BE ANODIZED, COATED, AND PROTECTED FROM DIRECT ENVIRONMENTAL EXPOSURE TO PREVENT REFLECTIVE DEGRADATION OR CORROSION. ALL EXPOSED HARDWARE AND FASTENERS SHALL BE STAINLESS STEEL OF 18-8 GRADE OR BETTER, PASSIVATED AND COATED WITH ALUMINUM-BASED THERMOSETTING EPOXY RESIN FOR PROTECTION AGAINST CORROSION AND STRESS CORROSION CRACKING. STRUCTURAL FASTENERS MAY BE CARBON STEEL AND GALVANIZED MEETING ASTM A153 AND ISO/EN 1461 (FOR HOT DIPPED GALVANIZING), OR ASTM B695 (FOR MECHANICAL GALVANIZING). ALL WIRING SHALL BE ENCLOSED WITHIN THE CROSSARMS, POLE, OR ELECTRICAL COMPONENTS ENCLOSURE.  
**C. SYSTEM DESCRIPTION:** LIGHTING SYSTEM SHALL CONSIST OF THE FOLLOWING:  
 1. GALVANIZED STEEL POLES AND CROSSARM ASSEMBLY. ALTERNATE: CONCRETE POLE WITH A MINIMUM OF 8,000 PSI AND INSTALLED WITH CONCRETE BACKFILL WILL BE AN ACCEPTABLE ALTERNATIVE PROVIDED BUILDING CODE, WIND SPEED AND FOUNDATION DESIGNS PER SPECIFICATIONS ARE ADHERED TO.  
 2. NON-APPROVED POLE TECHNOLOGY:  
 a. SQUARE STATIC CAST CONCRETE POLES WILL NOT BE ACCEPTED.  
 b. DIRECT BURY STEEL POLES WHICH UTILIZE THE EXTENDED PORTION OF THE STEEL SHAFT FOR THEIR FOUNDATION WILL NOT BE ACCEPTED DUE TO POTENTIAL FOR INTERNAL AND EXTERNAL CORROSIVE REACTION TO THE SOILS AND LONG TERM PERFORMANCE CONCERNS.  
 c. PRE-STRESSED CONCRETE BASE EMBEDDED IN CONCRETE BACKFILL ALLOWED TO CURE FOR 12-24 HOURS BEFORE POLE STRESS IS APPLIED. ALTERNATE MAY BE AN ANCHOR BOLT FOUNDATION DESIGNED SUCH THAT THE STEEL POLE AND ANY EXPOSED STEEL PORTION OF THE FOUNDATION IS LOCATED A MINIMUM OF 18 INCHES ABOVE FINAL GRADE. THE CONCRETE FOR ANCHOR BOLT FOUNDATIONS SHALL BE ALLOWED TO CURE FOR A MINIMUM OF 28 DAYS BEFORE THE POLE STRESS IS APPLIED UNLESS SHORTER CURE TIME APPROVED BY A STRUCTURAL ENGINEER (P.E.) PROVIDED BY THE POLE MANUFACTURER. ALL STRUCTURAL DRAWINGS FOR THE POLE DESIGN AND LOAD BEARING SHALL BE PROVIDED BY THE INSTALLING CONTRACTOR AND/OR POLE MANUFACTURER.  
 4. ALL LUMINAIRES SHALL BE CONSTRUCTED WITH A DIE-CAST ALUMINUM HOUSING OR EXTERNAL HAIL SHROUD TO PROTECT THE LUMINAIRE REFLECTOR SYSTEM.  
 5. MANUFACTURER WILL REMOTE ALL BALLASTS AND SUPPORTING ELECTRICAL EQUIPMENT IN ALUMINUM ENCLOSURES MOUNTED APPROXIMATELY 10 FEET ABOVE GRADE. THE ENCLOSURES SHALL BE TOUCH-SAFE AND INCLUDE BALLAST, CAPACITOR AND FUSING WITH INDICATOR LIGHTS ON FUSES TO NOTIFY WHEN A FUSE IS TO BE REPLACED FOR EACH LUMINAIRE. DISCONNECT PER CIRCUIT FOR EACH POLE STRUCTURE WILL BE LOCATED IN THE ENCLOSURE. INTEGRAL BALLAST FIXTURES WILL NOT BE ACCEPTED.  
 6. WIRE HARNESS COMPLETE WITH AN ABRASION PROTECTION SLEEVE, STRAIN RELIEF AND PLUG-IN CONNECTIONS FOR FAST, TROUBLE-FREE INSTALLATION.  
 7. ALL LUMINAIRES, VISORS, AND CROSSARM ASSEMBLIES SHALL WITHSTAND 150 MPH WINDS AND MAINTAIN LUMINAIRE AIMING ALIGNMENT  
 8. CONTROL CABINET TO PROVIDE REMOTE ON-OFF CONTROL AND MONITORING OF THE LIGHTING SYSTEM. CABINET SHALL BE CONSTRUCTED OF ALUMINUM AND BE RATED NEMA TYPE 4. COMMUNICATION METHOD SHALL BE PROVIDED BY MANUFACTURER. CABINET SHALL CONTAIN CUSTOM CONFIGURED CONTACTOR MODULES FOR 30, 60, AND 100 AMPS, LABELED TO MATCH FIELD DIAGRAMS AND ELECTRICAL DESIGN. MANUAL OFF-ON-AUTO SELECTOR SWITCHES SHALL BE PROVIDED. INDIVIDUAL FIELD AND EGRESS ON/OFF KEY SWITCHES (TOTAL OF 4) SHALL BE INSTALLED, LABELED, AND PROVIDED ON THE INTERIOR WALL OF THE POWER DISTRIBUTION AREA. LABELING SHALL INCLUDE THE FIELD NUMBER/IDENTIFIER OR EGRESS AREA(NORTH OR SOUTH EGRESS).  
 9. LIGHTNING PROTECTION: MANUFACTURER SHALL PROVIDE INTEGRATED LIGHTNING GROUNDING VIA CONCRETE ENCASED ELECTRODE GROUNDING SYSTEM AS DEFINED BY NFPA 780 AND BE UL LISTED PER UL 96 AND UL 96A. IF GROUNDING IS NOT INTEGRATED INTO THE STRUCTURE, THE MANUFACTURER SHALL SUPPLY GROUNDING ELECTRODES, COPPER DOWN CONDUCTORS, AND EXOTHERMIC WELD KITS. ELECTRODES AND CONDUCTORS SHALL BE SIZED AS REQUIRED BY NFPA 780. THE GROUNDING ELECTRODE SHALL BE MINIMUM SIZE OF 5/8 INCH DIAMETER AND 8 FEET LONG, WITH A MINIMUM OF 10 FEET EMBEDMENT; GROUNDING ELECTRODE SHALL BE CONNECTED TO THE STRUCTURE BY A GROUNDING ELECTRODE CONDUCTOR WITH A MINIMUM SIZE OF 2 AWG FOR POLES WITH 75 FEET MOUNTING HEIGHT OR LESS, AND 2/0 AWG FOR POLES WITH MORE THAN 75 FEET MOUNTING HEIGHT.  
 10. SURGE PROTECTION: APPROPRIATE SURGE PROTECTION FOR THE LINE AND LOAD SIDE OF THE SPORTS LIGHTING. UNITS MUST BE PROVIDED IN THE BALLAST ENCLOSURE AND INSIDE THE CONTACTOR CABINET FOR PROTECTION.  
**D. SAFETY:** ALL SYSTEM COMPONENTS SHALL BE UL LISTED FOR THE APPROPRIATE APPLICATION.

**2.2 ELECTRICAL**  
**A. ELECTRIC POWER REQUIREMENTS FOR THE SPORTS LIGHTING EQUIPMENT:**  
 1. ELECTRIC POWER: 480 VOLT, 3 PHASE  
 2. MAXIMUM TOTAL VOLTAGE DROP: VOLTAGE DROP TO THE DISCONNECT SWITCH LOCATED ON THE POLES SHALL NOT EXCEED THREE (3) PERCENT OF THE RATED VOLTAGE.  
**B. ENERGY CONSUMPTION:** THE AVERAGE KW CONSUMPTION FOR THE SOCCER AND FOOTBALL FIELDS SYSTEM SHALL BE 150 KW OR LESS.  
**C. REVISED ELECTRICAL DISTRIBUTION:** MANUFACTURER SHALL PROVIDE, AT THEIR COST, REVISED ELECTRICAL DISTRIBUTION PLANS TO INCLUDE CHANGES TO SERVICE ENTRANCE, PANELS AND WIRE SIZING IF USING LIGHTING METHOD 2.  
**2.3 STRUCTURAL PARAMETERS**  
**A. WIND LOADS:** WIND LOADS SHALL BE BASED ON THE 2017 FLORIDA BUILDING CODE. WIND LOADS TO BE CALCULATED USING ASCE 7 -10 PER 2010 FBC 1609.1.1. ULTIMATE DESIGN WIND SPEED OF 150 MPH.  
**B. POLE STRUCTURAL DESIGN:** THE STRESS ANALYSIS AND SAFETY FACTOR OF THE POLES SHALL CONFORM TO ASCE 7 -10 STANDARD SPECIFICATION FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS (LTS-4).  
**C. FOUNDATION DESIGN:** THE FOUNDATION DESIGN SHALL BE BASED ON SOIL PARAMETERS AS OUTLINED IN THE GEOTECHNICAL REPORT PROVIDED BY THE CONTRACTOR.  
**D. FOUNDATION DESIGN:** THE FOUNDATION DESIGN SHALL BE BASED ON SOILS THAT MEET OR EXCEED THOSE OF A CLASS 4 MATERIAL AS DEFINED BY 2010 FBC TABLE 1806.2.

**FOUNDATION DRAWINGS:** PROJECT SPECIFIC FOUNDATION DRAWINGS STAMPED BY A REGISTERED ENGINEER IN THE STATE OF FLORIDA ARE REQUIRED. THE FOUNDATION DRAWINGS MUST LIST THE MOMENT, SHEAR (HORIZONTAL) FORCE, AND AXIAL (VERTICAL) FORCE AT GROUND LEVEL FOR EACH POLE. THESE DRAWINGS ARE TO BE SUBMITTED AFTER THE BID AND ARE TO BE PROVIDED BY THE CONTRACTOR OR BY THE POLE MANUFACTURER.

**2.4 CONTROL SYSTEM**  
**A. REMOTE LIGHTING CONTROL SYSTEM:** SYSTEM SHALL ALLOW OWNER AND USERS WITH A SECURITY CODE TO SCHEDULE ON/OFF SYSTEM OPERATION VIA A WEB SITE, PHONE, FAX OR EMAIL UP TO TEN YEARS IN ADVANCE. MANUFACTURER SHALL PROVIDE AND MAINTAIN A TWO-WAY TOP/TP COMMUNICATION LINK. TRAINED STAFF SHALL BE AVAILABLE 24/7 TO PROVIDE SCHEDULING SUPPORT AND ASSIST WITH REPORTING NEEDS. THE OWNER MAY ASSIGN VARIOUS SECURITY LEVELS TO SCHEDULERS BY FUNCTION AND/OR FIELDS. THIS FUNCTION MUST BE FLEXIBLE TO ALLOW A RANGE OF PRIVILEGES SUCH AS FULL SCHEDULING CAPABILITIES FOR ALL FIELDS TO ONLY HAVING PERMISSION TO EXECUTE "EARLY OFF" COMMANDS BY PHONE. SCHEDULING TOOL SHALL BE CAPABLE OF SETTING CURFEW LIMITS. CONTROLLER SHALL ACCEPT AND STORE 7-DAY SCHEDULES, BE PROTECTED AGAINST MEMORY LOSS DURING POWER OUTAGES, AND SHALL REBOOT ONCE POWER IS REGAINED AND EXECUTE ANY COMMANDS THAT WOULD HAVE OCCURRED DURING OUTAGE.  
**B. REMOTE MONITORING SYSTEM:** SYSTEM SHALL MONITOR LIGHTING PERFORMANCE AND NOTIFY MANUFACTURER IF INDIVIDUAL LUMINAIRE OUTAGE IS DETECTED SO THAT APPROPRIATE MAINTENANCE CAN BE SCHEDULED. THE CONTROLLER SHALL DETERMINE SWITCH POSITION (MANUAL OR AUTO) AND CONTACTOR STATUS (OPEN OR CLOSED).  
**C. MANAGEMENT TOOLS:** MANUFACTURER SHALL PROVIDE A WEB-BASED DATABASE AND DASHBOARD TOOL OF ACTUAL FIELD USAGE AND PROVIDE REPORTS BY FACILITY AND USER GROUP. DASHBOARD SHALL ALSO SHOW CURRENT STATUS OF LAMP OUTAGES, CONTROL OPERATION AND SERVICE SCHEDULING INCLUDING RELAMPING OPERATIONS COMPLETED AND SCHEDULED. MOBILE APPLICATION WILL BE PROVIDED SUITABLE FOR IOS, ANDROID AND BLACKBERRY DEVICES.  
**HOURS OF USAGE:** MANUFACTURER SHALL PROVIDE A MEANS OF TRACKING ACTUAL HOURS OF USAGE FOR THE FIELD LIGHTING SYSTEM THAT IS READILY ACCESSIBLE TO THE OWNER.  
 1. CUMULATIVE HOURS: SHALL BE TRACKED TO SHOW THE TOTAL HOURS USED BY THE FACILITY.  
 2. CURRENT LAMP HOURS: SHALL BE TRACKED SEPARATELY TO REFLECT THE AMOUNT OF HOURS ON THE CURRENT SET OF LAMPS BEING USED, SO RELAMPING CAN BE SCHEDULED ACCURATELY.  
 3. REPORT HOURS SAVED BY USING EARLY OFF AND PUSH BUTTONS BY USERS.  
**D. COMMUNICATION COSTS:** MANUFACTURER SHALL INCLUDE COMMUNICATION COSTS FOR OPERATING THE CONTROLS AND MONITORING SYSTEM FOR A PERIOD OF 25 YEARS.

**2.5 SECURITY/WALKWAY LIGHTING**  
**A. MANUFACTURING REQUIREMENTS:** ALL COMPONENTS SHALL BE DESIGNED AND MANUFACTURED AS A SYSTEM. ALL LUMINAIRES, WIRE HARNESSSES, DRIVER AND OTHER ENCLOSURES SHALL BE FACTORY ASSEMBLED, AIMED, WIRED, AND TESTED.  
**B. COMPONENT DESCRIPTION:**  
 UTILIZING SPORTS LIGHT POLES  
 A 25 YEAR WARRANTY WITH ALL MAINTENANCE SHALL BE INCLUDED.  
 ENERGY CONSUMPTION: MAX KW FOR PROPOSED SYSTEM SHALL NOT EXCEED 4KW

**PART 3 - EXECUTION**  
**3.1 SOIL QUALITY CONTROL**  
**A. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNER IF SOIL CONDITIONS EXIST OTHER THAN THOSE ON WHICH THE FOUNDATION DESIGN IS BASED, OR IF THE SOIL CANNOT BE READILY EXCAVATED. CONTRACTOR MAY ISSUE A CHANGE ORDER REQUEST / ESTIMATE FOR THE OWNER'S APPROVAL / PAYMENT FOR ADDITIONAL COSTS ASSOCIATED WITH:**  
 1. PROVIDING ENGINEERED FOUNDATION EMBEDMENT DESIGN BY A REGISTERED ENGINEER IN THE STATE OF FL FOR SOILS OTHER THAN SPECIFIED SOIL CONDITIONS;  
 2. ADDITIONAL MATERIALS REQUIRED TO ACHIEVE ALTERNATE FOUNDATION;  
 3. EXCAVATION AND REMOVAL OF MATERIALS OTHER THAN NORMAL SOILS, SUCH AS ROCK, CALICHE, ETC.  
**3.2 DELIVERY TIMING**  
 DELIVERY TIMING EQUIPMENT ON-SITE: THE EQUIPMENT MUST BE ON-SITE 4 TO 6 WEEKS FROM RECEIPT OF APPROVED SUBMITTALS AND RECEIPT OF COMPLETE ORDER INFORMATION.  
**3.3 FIELD QUALITY CONTROL**  
**A. ILLUMINATION MEASUREMENTS:** UPON SUBSTANTIAL COMPLETION OF THE PROJECT AND IN THE PRESENCE OF THE CONTRACTOR, PROJECT ENGINEER, OWNER'S REPRESENTATIVE, AND MANUFACTURER'S REPRESENTATIVE, ILLUMINATION MEASUREMENTS SHALL BE TAKEN AND VERIFIED. THE ILLUMINATION MEASUREMENTS SHALL BE CONDUCTED IN ACCORDANCE WITH IESNA LM-5-04. FOR LIGHTING METHOD 1, TIMED POWER ADJUSTMENT SYSTEMS, LIGHT LEVELS MUST BE MEASURED AND EXCEED THE SPECIFIED TARGET LEVELS. FOR LIGHTING METHOD 2, LIGHT LEVELS MUST BE MEASURED AND MEET THE SPECIFIED INITIAL LIGHT LEVELS.

**B. FIELD LIGHT LEVEL ACCOUNTABILITY**  
 1. LIGHT LEVELS ARE GUARANTEED NOT TO FALL BELOW THE TARGET MAINTAINED LIGHT LEVELS FOR THE ENTIRE WARRANTY PERIOD OF 25 YEARS.  
 2. MANUFACTURER/CONTRACTOR SHALL PROVIDE TO THE OWNER AS PART OF THE BID PACKAGE A NEW LIGHT METER THAT WILL BE UTILIZED BOTH FOR INITIAL LIGHT LEVEL TESTING AND ANNUAL TESTING OF THE SYSTEM. INITIAL LIGHT TEST CERTIFICATION AT PROJECT COMPLETION SHALL BE CONDUCTED BY A THIRD PARTY STATE OF FL ELECTRICAL ENGINEER (P.E.). LIGHT METER SPECIFICATION SHALL BE GOSSEN MAVLOUX 5032B OR 5032C AND SHALL BE NEW AND CALIBRATED AT TIME OF DELIVERY.  
 3. THE CONTRACTOR/MANUFACTURER SHALL BE RESPONSIBLE FOR AN ADDITIONAL INSPECTION ONE YEAR FROM THE DATE OF COMMISSIONING OF THE LIGHTING SYSTEM AND WILL UTILIZE THE OWNER'S LIGHT METER IN THE PRESENCE OF THE OWNER.  
 4. THE CONTRACTOR/MANUFACTURER WILL BE HELD RESPONSIBLE FOR ANY AND ALL CHANGES NEEDED TO BRING THESE FIELDS BACK TO COMPLIANCE FOR LIGHT LEVELS AND UNIFORMITIES. CONTRACTOR/MANUFACTURER WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO THE FIELDS DURING THESE REPAIRS.  
**C. CORRECTING NON-COMPLIANCE:** IF, IN THE OPINION OF THE OWNER OR HIS APPOINTED REPRESENTATIVE, THE ACTUAL PERFORMANCE LEVELS INCLUDING ILLUMINATION LEVELS, UNIFORMITY RATIOS, AND MAXIMUM ENERGY CONSUMPTION DO NOT CONFORM TO THE REQUIREMENTS OF THE PERFORMANCE SPECIFICATIONS AND SUBMITTED INFORMATION, THE MANUFACTURER SHALL BE LIABLE TO ANY OR ALL OF THE FOLLOWING:  
 1. MANUFACTURER SHALL AT HIS EXPENSE PROVIDE AND INSTALL ANY NECESSARY ADDITIONAL LUMINAIRES TO MEET THE MINIMUM LIGHTING STANDARDS. THE MANUFACTURER SHALL ALSO EITHER REPLACE THE EXISTING POLES TO MEET THE NEW WIND LOAD (EPA) REQUIREMENTS OR VERIFY BY CERTIFICATION BY A LICENSED STRUCTURAL ENGINEER THAT THE EXISTING POLES WILL WITHSTAND THE ADDITIONAL WIND LOAD.  
 2. MANUFACTURER SHALL MINIMIZE THE OWNER'S ADDITIONAL LONG TERM LUMINAIRE MAINTENANCE AND ENERGY CONSUMPTION COSTS CREATED BY THE ADDITIONAL LUMINAIRES BY REIMBURSING THE OWNER THE AMOUNT OF \$1,000.00 (ONE THOUSAND DOLLARS) FOR EACH ADDITIONAL LUMINAIRE REQUIRED.  
 3. MANUFACTURER SHALL REMOVE THE ENTIRE UNACCEPTABLE LIGHTING SYSTEM AND INSTALL A NEW LIGHTING SYSTEM TO MEET THE SPECIFICATIONS

**3.4 25-YEAR WARRANTY**  
**A. EACH MANUFACTURER SHALL SUPPLY A SIGNED WARRANTY COVERING THE ENTIRE SYSTEM FOR 25 YEARS OR FOR THE MAXIMUM HOURS OF COVERAGE BASED ON THE ESTIMATED ANNUAL USAGE, WHICHEVER OCCURS FIRST. WARRANTY SHALL GUARANTEE LIGHT LEVELS WILL NOT FALL BELOW TARGET MAINTAINED LEVELS. A +/- 10% DESIGN/TESTING ALLOWANCE WILL NOT BE ALLOWED. WARRANTY SHALL ALSO COVER: LAMP REPLACEMENTS, SYSTEM ENERGY CONSUMPTION, MONITORING, MAINTENANCE AND CONTROL SERVICES, SPILL LIGHT CONTROL, AND STRUCTURAL INTEGRITY. MANUFACTURER SHALL MAINTAIN SPECIFICALLY-FUNDED FINANCIAL RESERVES TO ASSURE FULFILLMENT OF THE WARRANTY FOR THE FULL TERM. WARRANTY MAY EXCLUDE FUSES, STORM DAMAGE, VANDALISM, ABUSE AND UNAUTHORIZED REPAIRS OR ALTERATIONS.  
**B. GROUP LAMP REPLACEMENT METHOD 1 SYSTEMS (TIME POWERED ADJUSTMENT) MUST OCCUR AT END OF USEFUL LIFE OF LAMP AS STATED BY MANUFACTURER. GROUP LAMP REPLACEMENTS FOR METHOD 2 SYSTEMS (CONTINUOUS DEPRECIATING LIGHT) MUST RELAMP EVERY 2,100 HOURS.  
 C. MAINTENANCE:** MANUFACTURER SHALL MONITOR THE PERFORMANCE OF THE LIGHTING SYSTEM, INCLUDING ON/OFF STATUS, HOURS OF USAGE AND LAMP OUTAGE FOR 25 YEARS FROM THE DATE OF EQUIPMENT SHIPMENT. INDIVIDUAL LAMP OUTAGES SHALL BE REPAIRED WHEN THE USAGE OF ANY FIELD IS MATERIALLY IMPACTED. OWNER AGREES TO CHECK FUSES IN THE EVENT OF A LUMINAIRE OUTAGE.  
**3.5 SUBMITTAL**  
**A. ALL CONTRACTORS MUST SUBMIT FULL SPORTS LIGHTING SUBMITTALS AT THE TIME OF THE BID. PLEASE REFERENCE THE BID REQUIRED SUBMITTAL INFORMATION.**  
**BID REQUIRED SUBMITTAL INFORMATION****

ALL ITEMS LISTED BELOW ARE MANDATORY, SHALL COMPLY WITH THE SPECIFICATION AND BE SUBMITTED PER THE REQUIREMENTS OF THE BID DOCUMENTS. ALL INFORMATION SHALL BE PROVIDED TO THE AUTHORITY HAVING JURISDICTION AND OWNER'S REPRESENTATIVE AT THEIR REQUEST.  
 • TABLE OF CONTENTS - LISTING OF ALL INFORMATION BEING SUBMITTED MUST BE INCLUDED ON THE TABLE OF CONTENTS. LIST THE NAME OF THE MANUFACTURER'S LOCAL REPRESENTATIVE AND HIS/HER PHONE NUMBER. **SIGNED SUBMITTAL CHECKLIST TO BE INCLUDED.**  
 • LIGHTING DESIGN DRAWING(S) SHOWING:  
 • FIELD NAME, DATE, FILE NUMBER, PREPARED BY, AND OTHER PERTINENT DATA  
 • OUTLINE OF FIELD(S) BEING LIGHTED, AS WELL AS POLE LOCATIONS REFERENCED TO THE CENTER OF THE FIELD (X & Y). ILLUMINANCE LEVELS AT GRID SPACING SPECIFIED  
 • POLE HEIGHT, NUMBER OF FIXTURES PER POLE, AS WELL AS LUMINAIRE INFORMATION INCLUDING WATTAGE, LUMENS AND OPTICS  
 • HEIGHT OF METER ABOVE FIELD SURFACE  
 • SUMMARY TABLE SHOWING THE NUMBER AND SPACING OF GRID POINTS; AVERAGE, MINIMUM AND MAXIMUM ILLUMINANCE LEVELS IN FOOT CANDLES (FC); UNIFORMITY INCLUDING MAXIMUM TO MINIMUM RATIO, COEFFICIENT OF VARIANCE AND UNIFORMITY GRADIENT; NUMBER OF LUMINAIRES, TOTAL KILOWATTS, AVERAGE TILT FACTOR; LIGHT LOSS FACTOR.  
 • IF BIDDING TECHNOLOGY OTHER THAN TIMED POWER ADJUSTMENTS, MANUFACTURERS SHALL PROVIDE BOTH INITIAL AND MAINTAINED LIGHT SCANS.  
 • IF THE MANUFACTURER DESIRES TO USE A MAINTENANCE FACTOR OTHER THAN SPECIFIED IN SECTION 1.2, B, INDEPENDENT FIELD TEST REPORT FROM LICENSED PROFESSIONAL ENGINEER WILL BE REQUIRED TO SUBSTANTIATE THE ABILITY TO MAINTAIN LIGHT LEVELS IN ACCORDANCE WITH SECTION 1.2-A OF THE SPECIFICATION. BOTH INITIAL AND MAINTAINED LIGHT SCANS MUST STILL BE PROVIDED. INDEPENDENT ENGINEER CONDUCTING THE REPORT MUST HAVE NO AFFILIATION WITH THE MANUFACTURER AND REPORT MUST BE BASED ON ACTUAL TESTING DATA. TESTING MUST BE DONE ON THE SYSTEM AS A WHOLE, NOT ON INDIVIDUAL COMPONENTS.  
 • LIGHTING DESIGN DRAWING SHOWING INITIAL SPILL LIGHT LEVELS ALONG THE BOUNDARY LINE (DEFINED ON BID DRAWINGS) IN FOOTCANDLES. LIGHT LEVELS SHALL BE TAKEN AT 30-FOOT INTERVALS ALONG THE BOUNDARY LINE. READINGS SHALL BE TAKEN WITH THE METER ORIENTATION AT BOTH HORIZONTAL AND AIMED TOWARDS THE MOST INTENSE BANK OF LIGHTS.  
 • MANUFACTURER USING LIGHTING METHOD 2 MUST INCLUDE A REVISED ELECTRICAL DISTRIBUTION PLAN INCLUDING CHANGES TO SERVICE ENTRANCE, PANELS AND WIRE SIZING, SIGNED BY A LICENSED ELECTRICAL ENGINEER IN THE STATE OF FL.  
 • LAMP CUT SHEET FROM THE FIXTURE MANUFACTURER.  
 • LUMINAIRE AIMING SUMMARY - DOCUMENT SHOWING EACH LUMINAIRE'S AIMING ANGLE AND THE POLES ON WHICH THE LUMINAIRES ARE MOUNTED. EACH AIMING POINT SHALL IDENTIFY THE TYPE OF LUMINAIRE.  
 • CONTROL AND MONITORING - MANUFACTURER SHALL PROVIDE WRITTEN DEFINITION AND SCHEMATICS FOR AUTOMATED CONTROL SYSTEM TO INCLUDE MONITORING. THEY WILL ALSO PROVIDE EXAMPLES OF SYSTEM REPORTING AND ACCESS FOR NUMBERS FOR PERSONAL CONTACT TO OPERATE THE SYSTEM. MANUFACTURER MUST ALSO DISCLOSE ANY MONITORING COSTS FOR 25 YEARS AND WHO IS RESPONSIBLE FOR MONITORING. IF THE MANUFACTURER IS NOT THE MONITORING AGENT, INFORMATION ON THE COMPANY RESPONSIBLE FOR MONITORING MUST BE PROVIDED.  
 • INDEPENDENT TESTING REPORTS:  
**g. LIGHTING METHOD 1 IS TO PROVIDE AN INDEPENDENT TEST REPORT CERTIFYING THE SYSTEM MEETS THE LUMEN MAINTENANCE CONTROL STRATEGY DEFINED IN SECTION 1.2.C.1.A, VERIFYING THE FIELD PERFORMANCE OF THE SYSTEM FOR THE DURATION OF THE USEFUL LIFE OF THE LAMP BASED ON LAMP REPLACEMENT HOURS. REPORT SHALL BE SIGNED BY A LICENSED PROFESSIONAL ENGINEER WITH OUTDOOR LIGHTING EXPERIENCE.**

**b. IF MANUFACTURER USING LIGHTING METHOD 2 DESIRES TO PROVIDE A RECOVERABLE LIGHT LOSS FACTOR OTHER THAN SPECIFIED IN SECTION 1.2.C.2, INDEPENDENT FIELD TEST REPORT FROM LICENSED PROFESSIONAL ENGINEER WILL BE REQUIRED TO SUBSTANTIATE THE ABILITY TO MAINTAIN LIGHT LEVELS IN ACCORDANCE WITH SECTION 1.2-A OF THE SPECIFICATION. BOTH INITIAL AND MAINTAINED LIGHT SCANS MUST STILL BE PROVIDED. INDEPENDENT ENGINEER CONDUCTING THE REPORT MUST HAVE NO AFFILIATION WITH THE MANUFACTURER AND REPORT MUST BE BASED ON ACTUAL TESTING DATA. TESTING MUST BE DONE ON THE SYSTEM AS A WHOLE, NOT ON INDIVIDUAL COMPONENTS.**

**PERFORMANCE GUARANTEE**  
 PROVIDE PERFORMANCE GUARANTEE INCLUDING A WRITTEN COMMITMENT TO UNDERTAKE ALL CORRECTIONS REQUIRED TO MEET THE PERFORMANCE REQUIREMENTS NOTED IN THESE SPECIFICATIONS AT NO EXPENSE TO THE OWNER. LIGHT LEVELS MUST BE GUARANTEED TO NOT FALL BELOW TARGET LEVELS FOR WARRANTY PERIOD.  
**WARRANTY - PROVIDE WRITTEN WARRANTY INFORMATION INCLUDING ALL TERMS AND CONDITIONS**  
 • PROJECT REFERENCES - MANUFACTURER TO PROVIDE A LIST OF PROJECT REFERENCES OF SIMILAR PRODUCTS COMPLETED WITHIN THE PAST FIVE YEARS. LIST MUST BE OF PROJECTS USING THE EXACT TECHNOLOGY BEING PROPOSED FOR THIS PROJECT.  
 • PRODUCT INFORMATION - COMPLETE SET OF PRODUCT BROCHURES AND BILL OF MATERIALS FOR ALL COMPONENTS, INCLUDING A COMPLETE PARTS LIST AND UL LISTINGS.  
 • NON-COMPLIANCE - MANUFACTURER SHALL LIST ALL ITEMS THAT DO NOT COMPLY WITH THE SPECIFICATIONS.  
 • COMPLIANCE - MANUFACTURER SHALL SIGN OFF THAT ALL REQUIREMENTS OF THE SPECIFICATIONS HAVE BEEN MET AT THAT THE MANUFACTURER WILL BE RESPONSIBLE FOR ANY FUTURE COSTS INCURRED TO BRING THEIR EQUIPMENT INTO COMPLIANCE FOR ALL ITEMS NOT MEETING SPECIFICATIONS AND NOT LISTED IN COMPLIANCE.  
 • LIFE CYCLE COST EVALUATION: DOCUMENT LIFE-CYCLE COST CALCULATIONS AS DEFINED IN THE SPECIFICATION. IDENTIFY ENERGY COSTS FOR OPERATING THE LUMINAIRES. MAINTENANCE COST FOR THE SYSTEM INCLUDING SPOT LAMP REPLACEMENT AND GROUP RELAMPING COSTS MUST BE INCLUDED IN THE WARRANTY. ALL COSTS SHOULD BE BASED ON 25 YEARS.

**PART 4 - DESIGN APPROVAL**

**4.0 PRE-BID SUBMITTAL REQUIREMENTS**  
**A. DESIGN APPROVAL:** THE OWNER / ENGINEER WILL REVIEW PRE-BID SUBMITTALS PER SECTION 4.0.B FROM ALL THE MANUFACTURERS TO ENSURE COMPLIANCE TO THE SPECIFICATION. DESIGN MEETS THE DESIGN REQUIREMENTS OF THE SPECIFICATIONS, A LETTER AND/OR ADDENDUM WILL BE ISSUED TO THE MANUFACTURER INDICATING APPROVAL FOR THE SPECIFIC DESIGN SUBMITTED.  
**B. LISTED MANUFACTURERS:**  
 1. METHOD 1: TIME POWERED ADJUSTMENT TECHNOLOGY - MUSCO'S GREEN GENERATION LIGHTING® SPORTS LIGHTING SYSTEM IS THE LISTED LIGHTING METHOD 1 PRODUCT.  
 2. METHOD 2: CONTINUOUS DEPRECIATING LIGHT - LIGHTING METHOD 2 PRODUCT.  
**C. ALL LISTED MANUFACTURERS SHALL SUBMIT THE INFORMATION AT THE END OF THIS SECTION AT LEAST 10 DAYS PRIOR TO BID. AN ADDENDUM WILL BE ISSUED PRIOR TO BID; LISTING APPROVED LIGHTING MANUFACTURERS AND THE DESIGN METHOD TO BE USED.  
 D. BIDDERS ARE REQUIRED TO BID ONLY PRODUCTS THAT HAVE BEEN APPROVED BY THIS SPECIFICATION OR ADDENDUM BY THE OWNER OR OWNER'S REPRESENTATIVE. BIDS RECEIVED THAT DO NOT UTILIZE AN APPROVED SYSTEM/DESIGN, WILL BE REJECTED.**

**5.0 ADDITIONAL NOTES AND COMMENTS:**  
 1. EXISTING CONDITIONS - THE EXISTING CONDITIONS SHOULD BE SURVEYED TO DETERMINE THE CURRENT LIGHT LEVELS WHICH WILL ASSIST IN DETERMINING THE OVERALL IMPACT OF THE NEW LIGHTING SYSTEM.  
 2. POLE STRUCTURAL - SINCE THE POLE WILL HAVE ADDITIONAL / DIFFERENT LUMINAIRES, THE DESIGN NEEDS TO TAKE INTO ACCOUNT THE REVISED LUMINAIRE WEIGHTS, MOUNTING CONFIGURATIONS, INCLUDING AVIAN PLATFORMS, AND WIND LOADINGS. THESE WILL NEED TO BE VERIFIED AS ACCEPTABLE BY A REGISTERED STRUCTURAL P.E. TO ENSURE THE POLES AND FOUNDATIONS ARE CAPABLE OF CARRYING THE REVISED LOADS. THIS SERVICE SHALL BE PROVIDED BY THE CONTRACTOR.  
 3. QUANTITY / ENERGY - DEPENDING ON THE MANUFACTURER SELECTED THE OVERALL QUANTITY OF LUMINAIRES WILL CHANGE. DIFFERENT MANUFACTURERS PRODUCTS WILL VARY IN THEIR PERFORMANCE AND MAY REQUIRE FEWER OR MORE LUMINAIRES TO ACHIEVE SIMILAR RESULTS. AN MANUFACTURER OTHER THAN THE BASIS OF DESIGN MAY REQUIRE AN INCREASE IN THE FEEDER AND CONTACTOR SIZE.  
 4. SPILL LIGHTING - SPILL LIGHTING SHALL BE CONSIDERED AND THE IMPACT TO THE NEIGHBORING COMMUNITY. SPILL LIGHTING MEASUREMENTS SHOULD BE DONE AT THE PROPERTY LINE AND 300 FEET BEYOND THE PROPERTY BOUNDARY LINE.  
 5. LIGHT RACK CONFIGURATION - A DETAIL OF THE LUMINAIRE MOUNTING AND RACK CONFIGURATION SHALL BE PROVIDED BY THE MANUFACTURER. THE CONFIGURATIONS SHOULD SHOW LUMINAIRES BEING USED FOR THE VARIOUS LIGHTING SCENARIOS, I.E. GAME LIGHTING, TRAINING LIGHTING, AND CLEANUP LIGHTING.  
 6. CONTROLS - THE NUMBER OF DIFFERENT LIGHTING SCENARIOS WILL DETERMINE THE NUMBER OF CONTACTORS REQUIRED TO CONTROL THE LIGHTS. SCENARIOS WE FORESEE INCLUDED: THE THREE FIELDS (SEPARATELY CONTROLLED), AND THREE SECURITY LIGHTING AREAS. A TOTAL OF 6 SCENARIOS. EACH OF THESE SECTIONS SHALL HAVE A KEY SWITCH SEPARATE TO TURN THE LIGHTS ON/OFF AS AN OPTIONAL BYPASS. A CONTROL PANEL AND KEY SWITCH SYSTEM/MANUAL SWITCHES CABINET TO CONTROL SCENARIOS SHALL BE SUPPLIED.

**WARRANTY AND GUARANTEE**  
 25-YEAR WARRANTY: EACH MANUFACTURER SHALL SUPPLY A SIGNED WARRANTY COVERING THE ENTIRE SYSTEM FOR 25 YEARS FROM THE DATE OF SHIPMENT OR 25,000 HOURS, WHICHEVER COMES FIRST. WARRANTY SHALL GUARANTEE SPECIFIED LIGHT LEVELS, SYSTEM ENERGY CONSUMPTION, MONITORING, MAINTENANCE AND CONTROL SERVICES, SPILL LIGHT CONTROL, AND STRUCTURAL INTEGRITY. MANUFACTURER SHALL MAINTAIN SPECIFICALLY FUNDED FINANCIAL RESERVES TO ASSURE FULFILLMENT OF THE WARRANTY FOR THE FULL TERM. WARRANTY MAY EXCLUDE FUSES, STORM DAMAGE, VANDALISM, ABUSE AND UNAUTHORIZED REPAIRS OR ALTERATIONS. ALL SERVICE TO BE PERFORMED ON-SITE BY FACTORY AUTHORIZED TECHNICIANS AND SHALL INCLUDE PARTS AND LABOR.  
**DELIVERY TIMING**  
 EQUIPMENT ON-SITE: THE EQUIPMENT MUST BE ON-SITE 4-6 WEEKS FROM RECEIPT OF APPROVED SUBMITTALS AND RECEIPT OF COMPLETE ORDER INFORMATION.  
**PRE-BID SUBMITTAL REQUIREMENTS**  
 • APPROVED PRODUCT: MUSCO'S LIGHTING® LED SPORTS LIGHTING SYSTEM IS THE APPROVED BASE BID PRODUCT. ALL SUBSTITUTIONS MUST PROVIDE A COMPLETE SUBMITTAL PACKAGE FOR APPROVAL AS OUTLINED IN SUBMITTAL INFORMATION AT THE END OF THIS SECTION. SPECIAL MANUFACTURING TO MEET THE STANDARDS OF THIS SPECIFICATION MAY BE REQUIRED. AN ADDENDUM WILL BE ISSUED PRIOR TO BID LISTING ANY OTHER APPROVED LIGHTING MANUFACTURERS AND DESIGNS.  
 • DESIGN APPROVAL: THE OWNER / ENGINEER WILL REVIEW PRE-BID SHOP DRAWINGS FROM THE MANUFACTURERS TO ENSURE COMPLIANCE TO THE SPECIFICATION. IF THE DESIGN MEETS THE DESIGN REQUIREMENTS OF THE SPECIFICATIONS, A LETTER WILL BE ISSUED TO THE MANUFACTURER INDICATING APPROVAL FOR THE SPECIFIC DESIGN SUBMITTED.  
 • DUE TO NEW TECHNOLOGY BEING DEVELOPED, THE NUMBER OF LIGHTS AND POWER REQUIREMENTS MAY VARY, THESE SPECIFICATIONS ARE BASED UPON THE LATEST INFORMATION PROVIDED BY THE MANUFACTURER.

DATE	REV#	DESCRIPTION	SCALE	ATP ENGINEERING SOUTH, FL BRADENTON, FLORIDA ENGR. BUSINESS #8908 941-751-6485

**GT BRAY FOOTBALL AND SOCCER FIELDS**  
**LIGHTING PROJECT**  
 5502 33RD AVE. DR. W.  
 BRADENTON, FL 34209  
 WA# 3

**DRAWING TITLE**  
**GT BRAY FOOTBALL AND SOCCER SPECIFICATIONS**

FILE: GTBRAYFootballandSo

JOB NO.: 2017.70

DATE: 11/14/2017

PLOT SIZE: 1:1

DRAWN BY: MJC

CHECKED BY: MC

SHEET No.: **E6.1**